

Boston College Environmental Affairs Law Review

Volume 18 | Issue 2

Article 2

12-1-1991

Lessons Learned in Global Environmental Governance

Peter H. Sand

Follow this and additional works at: <https://lawdigitalcommons.bc.edu/ealr>



Part of the Environmental Law Commons

Recommended Citation

Peter H. Sand, *Lessons Learned in Global Environmental Governance*, 18 B.C. Envtl. Aff. L. Rev. 213 (1991),
<https://lawdigitalcommons.bc.edu/ealr/vol18/iss2/2>

This Article is brought to you for free and open access by the Law Journals at Digital Commons @ Boston College Law School. It has been accepted for inclusion in Boston College Environmental Affairs Law Review by an authorized editor of Digital Commons @ Boston College Law School. For more information, please contact abraham.bauer@bc.edu.

LESSONS LEARNED IN GLOBAL ENVIRONMENTAL GOVERNANCE

*Peter H. Sand**

I. INTRODUCTION: A MEMORY UNFROZEN	213
II. INNOVATIONS IN STANDARD-SETTING	218
A. <i>Asymmetrical Standards: How to Beat the Bottomline Rule</i>	220
1. Selective Incentives	221
2. Differential Obligations.....	224
3. Regionalization	226
4. Promoting Over-Achievement	231
B. <i>Fast Tracks: How to Beat the Slowest-Boat Rule</i>	236
1. Provisional Treaty Application	237
2. Soft Law Options.....	239
3. Delegated Lawmaking.....	242
III. INNOVATIONS IN IMPLEMENTATION.....	248
A. <i>Alternatives to Supranational Regulation</i>	250
1. Mutual Recognition.....	251
2. Model Diffusion.....	254
3. Alert Diffusion	262
4. Epistemic Networks.....	265
B. <i>Alternatives to Intergovernmental Litigation</i>	266
1. Local Remedies	267
2. Complaints and Custodial Action	269
3. Environmental Audits.....	272
IV. OUTLOOK: A VIEW FROM THE ANTHILL	275

I. INTRODUCTION: A MEMORY UNFROZEN

For two reasons, our generation will bear a heavier responsibility for the future of planet Earth than any generation before it. First,

* Principal Legal Officer, United Nations Conference on Environment and Development (UNCED), Geneva. This study was published originally, under the same title, by the World Resources Institute (WRI, Washington, D.C., June 1990). The editorial assistance of Kathleen Courier and Hyacinth Billings of WRI is gratefully acknowledged. Views and opinions expressed are, however, those of the author and do not necessarily reflect those of WRI or UNCED.

we *know* better—having gained access to an unprecedented wealth of new scientific information and a vastly improved capacity for analysis and prediction. Second, we can *do* better—having accumulated enough experience, technological and institutional, to take the necessary international action.

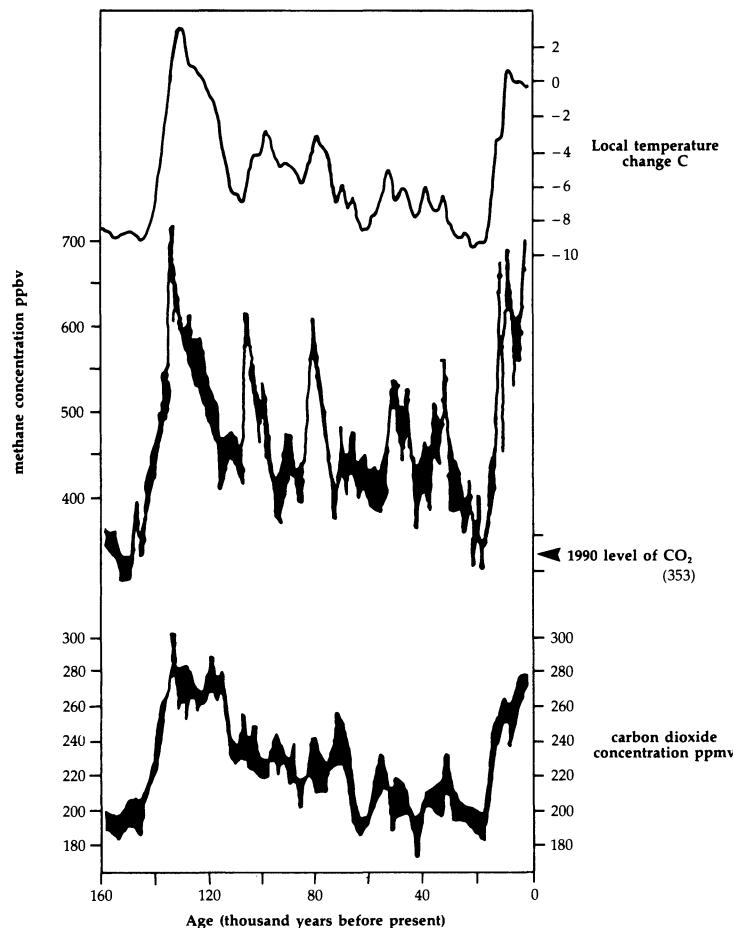
The first point needs little elaboration. The ongoing research of a team of French and Russian palaeo-glaciologists, which has proven the link between global warming and “greenhouse gases” in our atmosphere, is but one of many examples of the expanding knowledge base.¹ This breakthrough analysis was carried out on a 2000-metre-deep ice core excavated by the Soviet Antarctic Expeditions in Vostok, East Antarctica. Each successive layer of ice in the Vostok core contains myriad air bubbles trapped and hermetically sealed—in the case of the bottom-most layers for up to 160,000 years. By crushing the bubbles in laboratories in Grenoble and Saclay (France), scientists were able to identify their exact chemical composition by gas chromatography, and to determine their age by calculating the rate of ice sedimentation.

The net outcome of this analysis—which involved technology and computer calculations more sophisticated than any used even a few years ago—was a continuous historical record not only of the Earth’s atmospheric conditions but also of the corresponding temperature changes on the surface of Antarctica. (See Figure 1). The obvious next step was to compare this priceless new data base with other available information, including similar ice cores from Siple Station in Western Antarctica and from Greenland, maritime data from the Indian Ocean region, and more recent global monitoring data on atmospheric chemistry—such as the continuous carbon dioxide measurements from the Mauna Loa station in Hawaii, which began in 1958. (See Figure 2). What experts found was that the most recent ice-core data for carbon dioxide (CO_2) in Antarctic air matched contemporary Mauna Loa measurements of atmospheric CO_2 : both show a clear and steep upward trend. They also show a consistent correlation between the rise and fall in carbon dioxide, methane (the second major “greenhouse gas”), and global temperature, although we do not know the details of cause and effect.

Even more striking than the new empirical evidence contributing to our understanding of the greenhouse effect is the degree of inter-

¹ Lorius, Jouzel, Raynaud, Hansen & Le Treut, *The Ice-Core Record: Climate Sensitivity and Future Greenhouse Warming*, NATURE, Sept. 13, 1990, at 139–45. See also Siegenthaler & Oeschger, *Biospheric CO_2 Emissions During the Past 2000 Years Reconstructed by Deconvolution of Ice Core Data*, 39B TELLUS 140, 140–54 (1987).

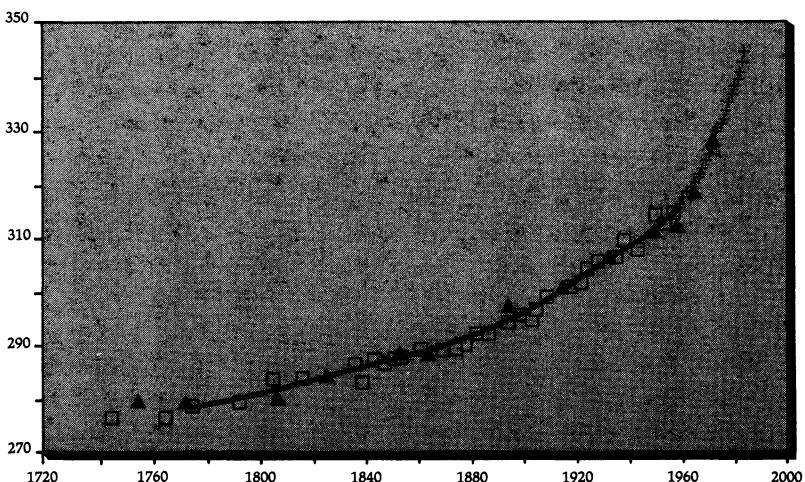
Figure 1: Long-Term Variations of Atmospheric Carbon Dioxide, Methane, and Temperature in Antarctica.



Source: Lorius, *supra* note 1.

national scientific cooperation through which this evidence has been produced. Reconsider the sequence: the Vostok ice core was drilled and extracted by Soviet Antarctic expeditions as part of the scientific programs authorized under the Antarctic Treaty; under a French-Russian agreement, the whole sample was analyzed in laboratories in France; the data were then compared with other ice-core data obtained by Swiss glaciologists at an Australian Antarctic station and with atmospheric chemistry data from an American monitoring

Figure 2. Correlation of Carbon Dioxide Concentrations from Ice Core Measurements.



Atmospheric carbon dioxide increase in the past 200 years as indicated by measurements on air trapped in old ice from Siple Station, Antarctica, measured by infra-red laser spectroscopy (full triangles; Neftel et al., 1985) and by gas chromatography (open squares; Friedli et al., 1986) and by the annual mean values from Mauna Loa Observatory (crosses; C.D. Keeling, personal communication). The full line is a spline fit through all data.

Source: Siegenthaler and Oeschger, note 1, p. 141

station in Hawaii; and the results were eventually reviewed and published in a British science magazine.

The sequence doesn't end here: the new Antarctic evidence is now before the Intergovernmental Panel on Climate Change (IPCC) set up in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). The IPCC used the data in its report to the second World Climate Conference in Geneva in November 1990, as a basis for specific recommendations for action by governments.

Clearly, the international machinery for environmental assessment is well established and functional. Worldwide scientific cooperation on environmental issues includes formal bilateral and multilateral channels, as well as informal transnational mechanisms for information-sharing and "peer review." While global demand for environmental knowledge has grown enormously, many examples of suc-

cessful assessment programs are at hand, from the ongoing "International Geosphere-Biosphere Programme"² of the International Council of Scientific Unions (ICSU) to the 1987 Report of the World Commission on Environment and Development (Brundtland Commission).³ The question remains: how well established and how functional are the institutions and mechanisms that can now translate these assessments into collective action?

As for international environmental management or governance,⁴ most current performance evaluations focus on the structure established by and after the 1972 Stockholm Conference on the Human Environment,⁵ primarily the UNEP and global and regional institutions formed after UNEP. Yet, international environmental co-operation did not begin at Stockholm. Conventions for marine pollution control were drafted twenty years earlier by the International Maritime Organization (then IMCO). The constitutional mandate of the United Nations Food and Agriculture Organization (FAO) for the "conservation of natural resources" was formulated in 1945. Standards to protect workers against occupational environmental hazards were adopted by the International Labour Organization (ILO) as early as the 1920s. Transboundary agreements for protecting migratory birds and managing shared water resources date to well before World War I, as do international arrangements by 19th century precursors of the World Meteorological Organization (WMO) for sharing atmospheric data. And the first serious, if unsuccessful, attempt at global environmental management was probably Theodore Roosevelt's initiative in 1909 to convene a world conference on natural resource conservation at The Hague.

It is time to take stock of this accumulated experience and institutional know-how, with a view to identifying innovative mechanisms for environmental standard-setting and implementation directly re-

² See Malone, *Mission to Planet Earth: Integrating Studies of Global Change*, ENV'T, Oct. 1986, at 6, 6-9; Malone & Correll, *Mission to Planet Earth Revisited: An Update on Studies of Global Change*, ENV'T, May 1989, at 6, 6-11, 31-35.

³ See e.g., WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, OUR COMMON FUTURE (1987) [hereinafter OUR COMMON FUTURE].

⁴ See generally, H. CLEVELAND, THE FUTURE OF INTERNATIONAL GOVERNANCE (1986); Myers, *Environmental Challenges: More Government or Better Governance?*, 17 AMBI 411, 412-14 (1988).

⁵ See, e.g., R. BOARDMAN, INTERNATIONAL ORGANIZATION AND THE CONSERVATION OF NATURE (1981); J. EASTBY, FUNCTIONALISM AND INTERDEPENDENCE (1985); J. SCHNEIDER, WORLD PUBLIC ORDER OF THE ENVIRONMENT: TOWARDS AN INTERNATIONAL ECOLOGICAL LAW AND ORGANIZATION (1979); Smith II, *The United Nations and the Environment: Sometimes a Great Notion?*, 19 TEX. INT'L L.J. 335 (1984).

lated to some of the decisionmaking ahead. Political scientists have referred to these types of mechanisms as international "regimes" (that is, "norms, rules and procedures agreed to in order to regulate an issue-area").⁶ It may be preferable in this case to define environmental regimes as transnational rather than international,⁷ considering that they are not confined to intergovernmental relations between nation-states and that many are hybrids, partaking of the international and domestic legal order, and of the public and private law sector. In fact, one of the most significant features of these regimes seems to be their ability to switch channels, to change and adapt techniques when needed in light of experience—in short, to innovate.

This survey is not intended to evaluate the ultimate ecological effectiveness of the substantive policies reflected in each of these transnational regimes. Indeed, such an evaluation would require the benefit of hindsight over a much longer time span than most of them have covered to date. (Twenty years equals ten inches, at best, of the Vostok ice core.) What is available, however, is a growing institutional memory of managerial methods for coping with some typical obstacles to effective international environmental governance.

II. INNOVATIONS IN STANDARD-SETTING

Traditionally, international standards have been set through treaties. An ad hoc diplomatic conference negotiates and adopts a treaty, which then has to undergo national ratification (usually by parliaments) to become legally binding. International environmental law-making poses no exception to this rule. Typically, therefore, most recent proposals for international action on global warming envisage a convention on climate change⁸ or on a "law of the atmos-

⁶ See INTERNATIONAL REGIMES (S.D. Krasner ed. 1983); Haas, *Why Collaborate? Issue-Linkage and International Regime*, 32 WORLD POLS. 357, 358, 397 (1980). On difficulties with regime definitions, see Abbott, *Modern International Relations Theory: A Prospectus for International Lawyers*, 14 YALE J. INT'L L. 335, 338-39 (1989); and Haggard & Simmons, *Theories of International Regimes*, 41 INT'L ORG. 491 (1987).

⁷ On the distinction, see P. JESSUP, TRANSNATIONAL LAW 2 (1956).

⁸ One of the earliest comprehensive proposals to this effect was formulated in 1976 by C. TICKELL, CLIMATIC CHANGE AND WORLD AFFAIRS (Harvard Studies in International Affairs No. 37) (1977). While some of the points raised therein have since been answered in part by the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, *opened for signature*, May 18, 1977, 31 U.S.T. 333, T.I.A.S. No. 9614, and by the *Provisions for Co-operation Between States in Weather Modification*, U.N. Doc. UNEP/GC/8/7/A (1980) [hereinafter *Weather Modification*], the proposal for a global framework convention reappears in a statement by Sir Crispin Tickell to the United Nations

phere,"⁹ along the lines of the United Nations' 1982 Montego Bay Convention on the Law of the Sea.¹⁰

As distinct from national environmental legislation, however, treaty rules laid down by conventional diplomatic "ad-hocracy"¹¹ have two fundamental drawbacks. First, they are based on the consensus or unanimity of all participants because no sovereign state is obliged to sign or ratify any treaty. Unlike decisions by a national legislature, which normally result in a median standard that is determined by majority vote but also binds the outvoted minority, internationally agreed-upon standards thus tend to reflect the lowest common denominator, or the "bottomline." Second, parliamentary ratification takes time, so the effectiveness of international agreements is deliberately delayed. Unlike national laws—which can fix their own dates of application, even allowing for immediate applicability or amendment—multilateral treaties can be brought into force, or amended, only after a specified number of signatories ratifies them. The purpose, of course, is to ensure a measure of reciprocity and to avoid situations in which initial compliance by a few diligent parties creates disproportionate benefits to the "free-riders" remaining outside the treaty. Setting a threshold number, however, also delays implementation to the speed of the slowest boat in the convoy.

It often has been pointed out how antiquated and cumbersome this conventional process is.¹² Diplomatic treaty-making may be a useful way to formulate principles of behavior and a framework for intergovernmental relations. But are traditional treaty techniques suitable for effective environmental governance at the global or regional scale once international action must pass from declarations to operations? Environmental problems frequently involve unfore-

Economic and Social Council (*Global Climate Change*, Statement by the Permanent Representative of the United Kingdom to the United Nations, New York, May 8, 1989). Possible elements for inclusion in a framework convention on climate change in the United Nations Environment Programme World Meteorological Organization (UNEP/WMO) Intergovernmental Panel on Climate Change (IPCC) are summarized in the report of the second session of IPCC Working Group III, at 33–40, U.N. Doc. IPCC-III/Doc.4 (1990).

⁹ For the Canadian and Maltese proposals, see Bruce, *Law of the Air: A Conceptual Outline*, 18 ENVTL. POL'Y. & L. 5 (1988); D. ATTARD, CLIMATE CHANGE 11–18 (1989); and the statement by the International Meeting of Legal and Policy Experts on Protection of the Atmosphere (Ottawa, Feb. 22, 1989).

¹⁰ Final Act, Convention, and Annexes in U.N. Sales No. E.83.V.5 (1983).

¹¹ Term coined by A. TOFFLER, FUTURE SHOCK 122–23 (1970).

¹² See, e.g., M. HUDSON, 1 INTERNATIONAL LEGISLATION, at XIII–LX (1931); C. EAGLETON, INTERNATIONAL GOVERNMENT 183–201 (3d ed. 1957); C.W. JENKS, THE COMMON LAW OF MANKIND 183–84 (1958).

seeable changes of circumstances—sometimes under crisis conditions—in the face of continuous scientific-technological progress. Critical to successful international management, therefore, is a normative system's capacity to respond to frequent and rapid change. If the classical treaty—that "sadly overworked instrument"¹³—lacks this capacity, what are the alternatives?

While it is difficult to see how the traditional treaty process can be avoided altogether, there are ways to deal with some of its shortcomings. A few of such alternatives—in Mancur Olson's terms, "politically feasible ways to increase the incentives for collectively rational behavior"¹⁴—are sketched here in light of practical experience with transnational environmental standards.

A. Asymmetrical Standards: How to Beat the Bottomline Rule

Multilateral agreements based on the lowest common denominator are well documented. In international fishery regimes, for example, a "law of the least ambitious program" has been diagnosed by a Norwegian political scientist, Arild Underdal:

Where international management can be established only through agreement among all significant parties involved, and where such a regulation is considered only on its own merits, collective action will be limited to those measures acceptable to the least enthusiastic party.¹⁵

Significantly, though, Underdal goes on to note, a reluctant party can often be persuaded to modify its position through "arguments, side-payments, or various kinds of political pressure."¹⁶

Even Underdal's catalogue of exceptions to the rule of the least ambitious program is far from exhaustive. As negotiating experience in the wider field of international environmental agreements shows, options for making ambitious programs or better-than-minimum standards attractive to parties include selective incentives, differential obligations, recourse to regional solidarity, and promotion of over-achievement by lead countries.

¹³ McNair, *The Functions and Differing Legal Character of Treaties*, 11 BRIT. Y.B. INT'L L. 100, 101 (1980); reprinted in A. MCNAIR, THE LAW OF TREATIES 739 (rev. ed. 1961).

¹⁴ Olson, *Increasing the Incentives for International Cooperation*, 25 INT'L ORG. 866, 874 (1971).

¹⁵ A. UNDERDAL, THE POLITICS OF INTERNATIONAL FISHERIES MANAGEMENT: THE CASE OF THE NORTHEAST ATLANTIC 36 (1980). I owe this reference to Edward L. Miles.

¹⁶ *Id.*

1. Selective Incentives

The concept of "selective incentives" is well established in economic group theory¹⁷ as one motive for collective action. It simply means that certain fringe benefits may persuade a party to participate in a program or standard that it otherwise would find unacceptable. The familiar parliamentary practice of coalition-building and majority-building by judicious distribution of special favors has obvious parallels in the negotiation of multilateral treaties.

A case in point is the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer.¹⁸ Under article 2(5), production increases by way of "transfers" were authorized between small-scale producers; by virtue of article 2(6), the USSR was granted "grandfather rights" for factories under construction until the end of 1990; in article 2(8), the Member States of the European Community were authorized to aggregate their national consumption limits; and in article 5, developing countries were allowed to postpone compliance by ten years.

It is easy to criticize the Montreal text as a compromise full of loopholes built in to accommodate special interests.¹⁹ But without these "rider" clauses, the agreement would either have lost some important signatories or jelled at a lower level of collective commitment. Paradoxically, loopholes can upgrade the overall standard of obligations in an agreement—raising them above the predictable common denominator.

In environmental treaty bargaining, the selective incentives commonly used are access to funding, access to resources, access to markets, and access to technology. Access to *funding* as an incentive to adhere to international conservation standards is perhaps best illustrated by the 1972 Convention for the Protection of the World Cultural and Natural Heritage²⁰—which, with 111 Member States,

¹⁷ See M. OLSON, THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS 51 (rev. ed. 1971); M. OLSON, THE RISE AND DECLINE OF NATIONS (1982).

¹⁸ Opened for signature Sept. 16, 1987, 26 I.L.M. 1550 [hereinafter Montreal Protocol]; see also G. LEAN, ACTION ON OZONE (1989); R. BENEDICK, OZONE DIPLOMACY: NEW DIRECTIONS IN SAFEGUARDING THE PLANET (1991); Lammers, *Efforts to Develop a Protocol on Chlorofluorocarbons to the Vienna Convention for the Protection of the Ozone Layer*, 1 HAGUE Y.B. INT'L L. 225–69 (1988); Lang, *Diplomatie zwischen Oekonomie und Oekologie: das Beispiel des Ozonvertrags von Montreal*, 43 EUROPA-ARCHIV 105–10 (1988); Szell, *The Montreal Protocol on Substances That Deplete the Ozone Layer*, 39 INT'L DIG. HEALTH LEGIS. 278–82 (1988).

¹⁹ See, e.g., Erlichman, *Ozone Pact Full of Holes*, THE GUARDIAN (Sept. 17, 1987).

²⁰ Nov. 16, 1972, 27 U.S.T. 37, T.I.A.S. No. 8226, 1087 U.N.T.S. 151; see also Meyer,

is the most widely accepted environmental treaty today. Under articles 13 and 19 of the Convention, parties are eligible for financial assistance from the World Heritage Fund to support conservation measures for national sites included in a "world heritage list" if they maintain these sites at agreed-upon standards of protection. The fund—administered by the United Nations Educational, Scientific and Cultural Organization (UNESCO)—now has an annual budget of \$2.2 million financed by both mandatory and voluntary contributions and split nearly evenly between projects for cultural and natural heritage sites.²¹

Access to the sustainable use of natural *resources* is an economic incentive for participating in many international regimes aimed at reconciling rational exploitation and conservation: wide-ranging examples of this incentive include the annual catch quota established under numerous regional agreements for marine fishing and seal hunting,²² and the worldwide 1946 International Convention for the Regulation of Whaling²³ (until the moratorium went into force in 1986), and the 1980 Canberra Convention on the Conservation of Antarctic Marine Living Resources.²⁴ The acceptance of environmental restrictions in return for the prospect of sharing mineral resources is as much a part of the UN Law of the Sea Convention as of the 1988 Wellington Convention on the Regulation of Antarctic Mineral Resource Activities.²⁵ Similarly, access to the world *market* for wildlife and wildlife products, in return for observing agreed-upon conservation standards, has been recognized as an economic incentive for countries to join the 1973 Washington Convention on

Travaux Preparatoires for the UNESCO World Heritage Convention, 2 EARTH L.J. 45–81 (1976); S. LYSTER, INT'L WILDLIFE L. 208–38 (1985).

²¹ *Situation of the World Heritage Fund and Budget for 1990*, UNESCO Doc. SC-89/CONF.004/8 (1989).

²² See, e.g., E. HEY, THE REGIME FOR THE EXPLOITATION OF TRANSBOUNDARY MARINE FISHERIES RESOURCES (1989); A. KOERS, INTERNATIONAL REGULATION OF MARINE FISHERIES: A STUDY OF REGIONAL FISHERIES ORGANIZATIONS (1973); see also S. LYSTER, *supra* note 20, at 208–38.

²³ Dec. 2, 1946, 61 Stat. 1213, T.I.A.S. No. 1597, 161 U.N.T.S. 72; See P. BIRNIE, INTERNATIONAL REGULATION OF WHALING (1985); Holt, *Whale Mining, Whale Saving*, 9 MARINE POL'Y 192–213 (1985); J. Scarff, *The International Management of Whales, Dolphins and Porpoises: An Interdisciplinary Assessment*, 6 ECOLOGY L.Q. 343–52 (1977).

²⁴ May 20, 1980, 19 I.L.M. 841; see S. LYSTER, *supra* note 20, at 156–77.

²⁵ June 2, 1988, 27 I.L.M. 868; see Watts, *The Convention on the Regulation of Antarctic Mineral Resource Activities 1988*, 39 INT'L & COMP. L.Q. 169–82 (1990); see also THE ANTARCTIC LEGAL REGIME (C. Joyner & S. Chopra ed. 1988); F. VICUNA, ANTARCTIC MINERAL EXPLOITATION: THE EMERGING FRAMEWORK (1988).

International Trade in Endangered Species of Wild Fauna and Flora (CITES)²⁶ which led to specific quota schemes for marketing "controlled" crocodile hides and (until 1989) ivory.²⁷

A more recent addition to the catalogue of selective incentives in international regimes is access to *technology*. This was used first and most prominently as an incentive for participation in the 1968 Treaty on the Non-Proliferation of Nuclear Weapons.²⁸ While early environmental treaties (such as the UNEP-sponsored regional seas conventions and protocols since 1976) contain only general recommendations on technical assistance to developing countries,²⁹ specific provisions to facilitate technology transfer have appeared in recent agreements, from the 1985 Vienna Convention for the Protection of the Ozone Layer³⁰ to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.³¹ In this context, the 1990 review of the Montreal Protocol resulted in the

²⁶ Mar. 3, 1973, 27 U.S.T. 1087, T.I.A.S. No. 8249, 993 U.N.T.S. 243 [hereinafter CITES]; see D. FAVRE, *INTERNATIONAL TRADE IN ENDANGERED SPECIES: A GUIDE TO CITES* (1989); Note, *Regulation of International Trade in Endangered Wildlife*, 1 B.U. INT'L L.J. 249-75 (1982); Comment, *International Trade in Wildlife: How Effective is the Endangered Species Treaty?*, 15 CAL. W.L.J. 111-60 (1985); van Hoogstraten, *The Effectiveness of International Law with Regard to Endangered Species*, 1986 Y.B. A. ATTENDERS & ALUMNI HAGUE ACAD. INT'L L. 157-68; S. LYSTER, *supra* note 20, at 239-77.

²⁷ See *Operation of the Ivory Trade Control System*, CITES Doc. 7.21 (1989) (the Secretariat report to the seventh meeting of the Conference of the Parties (Lausanne, Oct. 1989)).

²⁸ July 1, 1968, 21 U.S.T. 483, T.I.A.S. No. 6839, 729 U.N.T.S. 161; see M. SHAKER, *THE NUCLEAR NON-PROLIFERATION TREATY: ORIGIN AND IMPLEMENTATION 1959-1979*, at 300-470 (1980); B. SCHIFF, *INTERNATIONAL NUCLEAR TECHNOLOGY TRANSFER: DILEMMAS OF DISSEMINATION AND CONTROL* (1984).

²⁹ P. SAND, *MARINE ENVIRONMENT LAW IN THE UNITED NATIONS ENVIRONMENT PROGRAMME 5* (1988) (Barcelona Convention and Protocols, 1976, Art. 11(3)); *see id.* at 31 (Athens Protocol, 1980 Art. 10); *id.* at 140 (Cartagena Convention and Protocol, 1983, Art. 13(3)); *id.* at 199 (Noumea Convention and Protocols, Art. 18).

³⁰ Opened for signature Mar. 22, 1985, art. 4(2), 26 I.L.M. 1529, 1531, (1987) [hereinafter Vienna Convention on Ozone]; see Lang, *Luft und Ozon: Schutzobjekte des Völkerrechts*, 46 ZEITSCHRIFT FUER AUSLAENDISCHES OEFFENTLICHES RECHT UND VOELKERRECHT 261-85 (1986); Rummel-Bulksa, *Recent Developments Relating to the Vienna Convention for the Protection of the Ozone Layer*, 54-6 Y.B. A. ATTENDERS ALUMNI HAGUE ACAD. INT'L L., 115-125 (1986); Sand, *Protecting the Ozone Layer: The Vienna Convention Is Adopted*, ENV'T, June 1985, at 18-43; Szell, *The Vienna Convention for the Protection of the Ozone Layer*, 36 INT'L DIG. OF HEALTH LEGIS. 839-842 (1985); Tolba, *The Ozone Agreement—and Beyond*, 14 ENVTL. CONSERVATION 287-90 (1987).

³¹ Mar. 22, 1989, arts. 10(2) & 14, 28 I.L.M. 657, 667, 670 [hereinafter Basel Convention]; see *TRANSFERRING HAZARDOUS TECHNOLOGIES AND SUBSTANCES: THE INTERNATIONAL LEGAL CHALLENGE* (G. Handl & R. Lutz ed. 1989); Rublack, *Controlling Transboundary Movements of Hazardous Waste: The Evolution of a Global Convention*, 13 FLETCHER F. WORLD AFF. 113-25 (1989); Rublack, *Fighting Transboundary Waste Streams: Will the Basel Convention Help?*, 22 VERFASSUNG UND RECHT IN UEBERSEE 364-91 (1989).

establishment of an international trust fund for transferring technology and financial assistance to developing countries.³²

Clauses for the preferential acquisition of new environmental technology have become a major bargaining issue not only in North-South negotiations but also in East-West relations. For instance, a provision on "procedures to create more favorable conditions for the exchange of technology to reduce emissions of nitrogen oxides" was considered by East European countries (faced with Western export restrictions on strategic high technology) as one prerequisite for accepting the 1988 Sofia Protocol to the Convention on Long-Range Transboundary Air Pollution.³³ An intergovernmental task force on technology exchange has since been set up under the auspices of the Executive Body for the Convention.³⁴

2. Differential Obligations

Because selective incentives by definition lead to special treatment for selected parties, they skew an otherwise symmetrical system of reciprocal rights and obligations. Such manifest discrimination, particularly in the case of last-minute "add-ons," can seriously undermine the credibility of a multilateral agreement. Consequently, a more straightforward alternative is to start out with an asymmetrical regime that does not even pretend to treat states equally, and instead differentiates treaty obligations according to each party's special circumstances.

As an example, the European Community's Directive on the Limitation of Emissions of Certain Pollutants into the Air from Large Combustion Plants³⁵ of November 24, 1988, lays down a country-by-country time plan, taking into account the particular economic and technological situation in each of the twelve Member States. While

³² *Report of the Second Meeting of the Parties to the Montreal Protocol*, U.N. Doc. UNEP/OzL.Pro.2/3, Annex IV: Terms of Reference for the Multilateral Fund (as adopted in London, June 1990).

³³ Opened for signature Nov. 1, 1988, art. 3, 28 I.L.M. 214, 217 [hereinafter Nitrogen Oxides Protocol]; see Lammers, *Second Report of the Committee on Legal Aspects of Long-Distance Air Pollution*, in INTERNATIONAL LAW ASSOCIATION: REPORT OF THE WARSAW CONFERENCE 5-8, 27-40 (1988); Sand, *Regional Approaches to Transboundary Air Pollution*, in ENERGY: PRODUCTION, CONSUMPTION, AND CONSEQUENCES 246, 255 (J. Held ed. 1990); see also *infra* note 58.

³⁴ For a progress report of the task force, see *Convention on Long-Range Transboundary Air Pollution, Report of the Seventh Session*, U.N. Doc. E/ECE/EB.AIR/20 6-7 (1989).

³⁵ Council Directive 88/609/EEC, 31 O.J. EUR. COMM. (No. L 336) 1 (1988); see also Lammers, *supra* note 33, at 16; Haigh, *New Tools for European Air Pollution*, 1 INT'L ENVTL. AFF. no. 1, at 26-37 (1989).

Belgium, France, the Netherlands, and the Federal Republic of Germany are to reduce their sulphur dioxide emissions seventy percent by the year 2003, the target for Denmark was set at sixty-seven percent, for Italy at sixty-three percent, and for Luxembourg and the United Kingdom at sixty percent; at the same time, Greece, Ireland, and Portugal were allowed to increase emissions temporarily.

Skewed as these obligations may seem, they resemble the differential assessment scales that have been developed for multilateral funding of numerous environmental agreements. Under the 1976 Bonn Convention for the Protection of the Rhine Against Pollution by Chlorides,³⁶ for instance, the four riparian countries—the Netherlands, the Federal Republic of Germany, France, and Switzerland—agreed to share abatement costs (currently estimated at a total of \$136 million) in percentages of thirty-four percent, thirty percent, thirty percent, and six percent respectively.³⁷

The various UN trust funds set up since 1977 to finance joint programs under the Mediterranean Convention (annual budget \$3.8 million), the Endangered Species Convention (\$1.6 million), the Transboundary Air Pollution Convention (\$1 million), and the Ozone Layer Convention (\$1 million with the Montreal Protocol) all use weighted contributions based on the global assessment scale laid down by the UN General Assembly. In this system, countries are rated according to a combination of economic, geographic, and demographic criteria. (The only political limit to this prorated scheme is a twenty-five percent “ceiling” for individual contributions, introduced in 1972 at the United States’ insistence that no single party should be assessed at more than one quarter of the total budget.)³⁸

Differential scales enable even the smallest countries to participate on an equal footing without de-stabilizing a treaty’s budget. Indeed, under the Vienna/Montreal ozone layer agreements, Singapore con-

³⁶ Dec. 3, 1976, 16 I.L.M. 265 (1977) [hereinafter Protection of the Rhine]; see also Kiss, *The Protection of the Rhine Against Pollution*, 25 NAT. RESOURCES J. 613, 632 (1985); Lammers, *The Rhine: Legal Aspects of the Management of a Transboundary River*, in NATURE MANAGEMENT AND SUSTAINABLE DEVELOPMENT 440–57 (W. Verwey ed. 1989). Following a technical amendment in 1983 (text in NETHERLANDS TRACTATENBLAD no. 118, 1983), the Convention was amended in December 1986 by way of a joint declaration of the heads of delegation in the International Commission for the Protection of the Rhine against Pollution.

³⁷ See Protection of the Rhine, *supra* note 36, at 268–69.

³⁸ G.A. Res. 2961/B, U.N. Doc. A/8952 (1972) (amending “as a matter of principle” the scale of assessment that had originally set a maximum of 33.33% (G.A. Res. 14/I, Feb. 13, 1946), already reduced to 31.52% in 1957).

tributes \$1500 annually but exercises the same membership rights as the United States, which pays \$300,000 annually.

Such skewing is carried one step farther by the "critical loads" approach now being developed in the context of the Transboundary Air Pollution Convention. As defined in the 1988 Sofia Protocol Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes, critical load means "a quantitative estimate of the exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge."³⁹

When this approach is translated into national abatement targets, it is bound to lead to differential obligations (equitable rather than equal) for each party. The basic logic resembles that behind the concept of "safe minimum standards"⁴⁰ in natural resources management, which also aims at the equitable allocation of a common property resource without jeopardizing its long-term conservation for all users. Yet, the transition from "egalitarian" flat rates to highly individualized allocations also introduces a new level of complexity in environmental regimes—witness the amount of computer time now being spent on allocation models.⁴¹

3. Regionalization

Custom-built asymmetrical regimes are, of course, more easily achieved among regional groups of countries, where economic and other trade-offs can compensate for the asymmetries. Furthermore, if broadening the scope of an international regime means lowering its common denominator (with universal membership at the absolute

³⁹ *Nitrogen Oxides Protocol*, *supra* note 33, art. 3; see CRITICAL LOADS FOR SULPHUR AND NITROGEN (J. Nilsson & P. Grennfelt ed.); NORDIC COUNCIL OF MINISTERS, MILJO RAPPORT NO. 15 (1988); Mott, *Critical Loads Weighs In*, 6 ENVTL. F. 12–13 (1989); Persson, *Toward Resolution of the Acid Rain Controversy*, in INTERNATIONAL ENVIRONMENTAL DIPLOMACY 189–96 (J. Carroll ed. 1988).

⁴⁰ See S. VON CIRIACY-WANTRUP, RESOURCE CONSERVATION: ECONOMICS AND POLICIES 251–58 (3d ed. 1968). To the extent that critical loads start from the concept of a finite "ecologically tolerable" level of pollution or other interference with an ecosystem, they may also be compared to the concepts of "carrying capacity" in range management or "environmental (receiving, assimilative, absorptive) capacity" in marine pollution management. See UNEP, THE STATE OF THE MARINE ENVIRONMENT, GESAMP REPORTS AND STUDIES No. 39, at 82 (1990).

⁴¹ On the models developed for this purpose by the International Institute for Applied Systems Analysis (IIASA), see THE RAINS MODEL OF ACIDIFICATION: SCIENCE AND STRATEGIES IN EUROPE (J. Alcamo, R. Shaw & L. Hordijk eds. 1990); Hordijk, *Linking Policy and Science: A Model Approach to Acid Rain*, ENV'T, Mar. 1988, at 17–20, 40–42.

bottomline), then the reverse should also be true: restricting membership should raise the standard, particularly where such restriction reflects an element of geographic or other affinity between members.⁴²

Does international experience in environmental governance bear out this observation? Certainly, the degree of institutional cooperation accomplished under regional agreements for marine environment protection (*see Figure 3*)—such as the 1974 Helsinki and Paris Conventions for the Baltic and the North Sea⁴³ and the UNEP regional seas agreements starting with the 1976 Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution⁴⁴—has consistently been higher than under comparable global regimes, except possibly for ship-based pollution regulation by the International Maritime Organization (IMO).⁴⁵ At a time when the UN Law of the Sea Convention (with its chapter XII on global protection and preservation of the marine environment) has still not entered into force, more than fifty states are already legally bound by conventions and protocols concluded under UN environment pro-

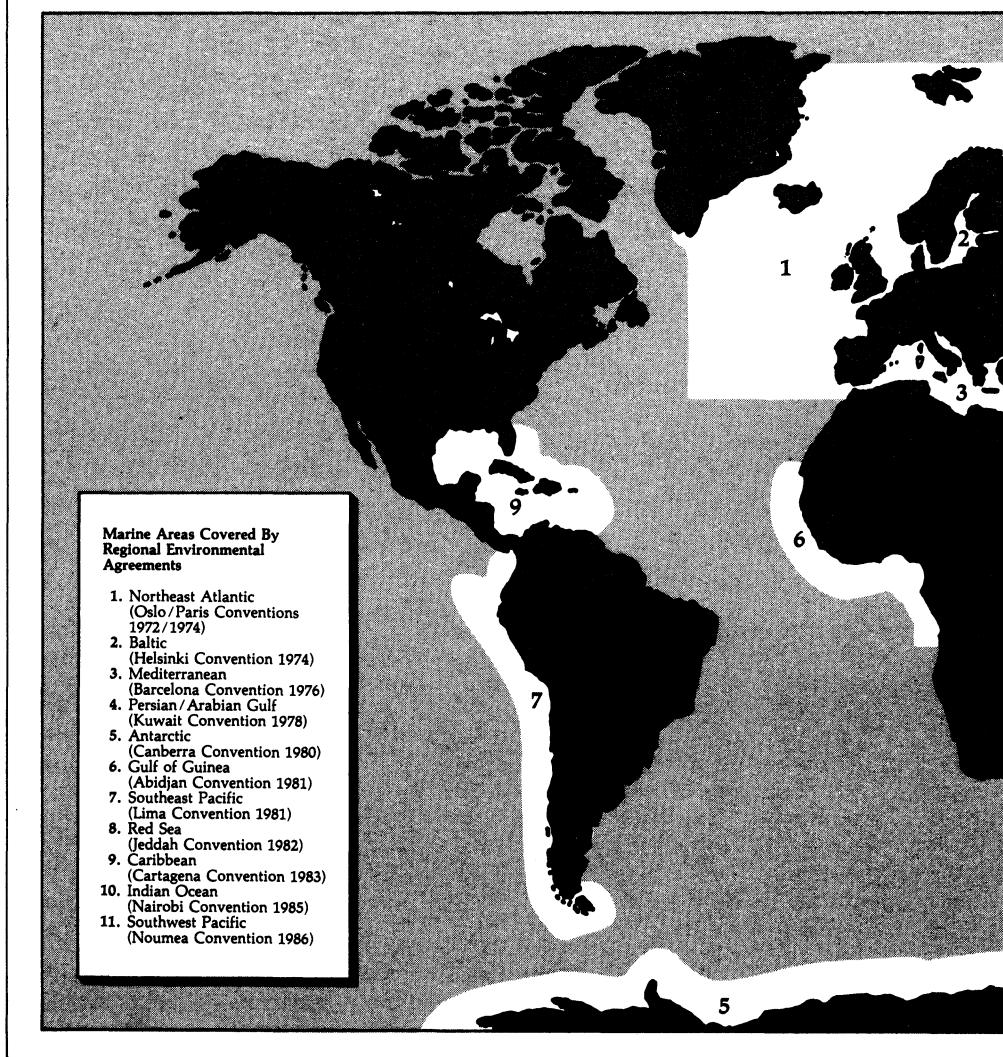
⁴² On the importance of group size, see M. OLSON, *supra* note 17, at 21. "Regional" groups in this context do not have to be geographically contiguous, as illustrated by the non-contiguous Organization for Economic Cooperation and Development (OECD) and European Free Trade Association (EFTA) groups.

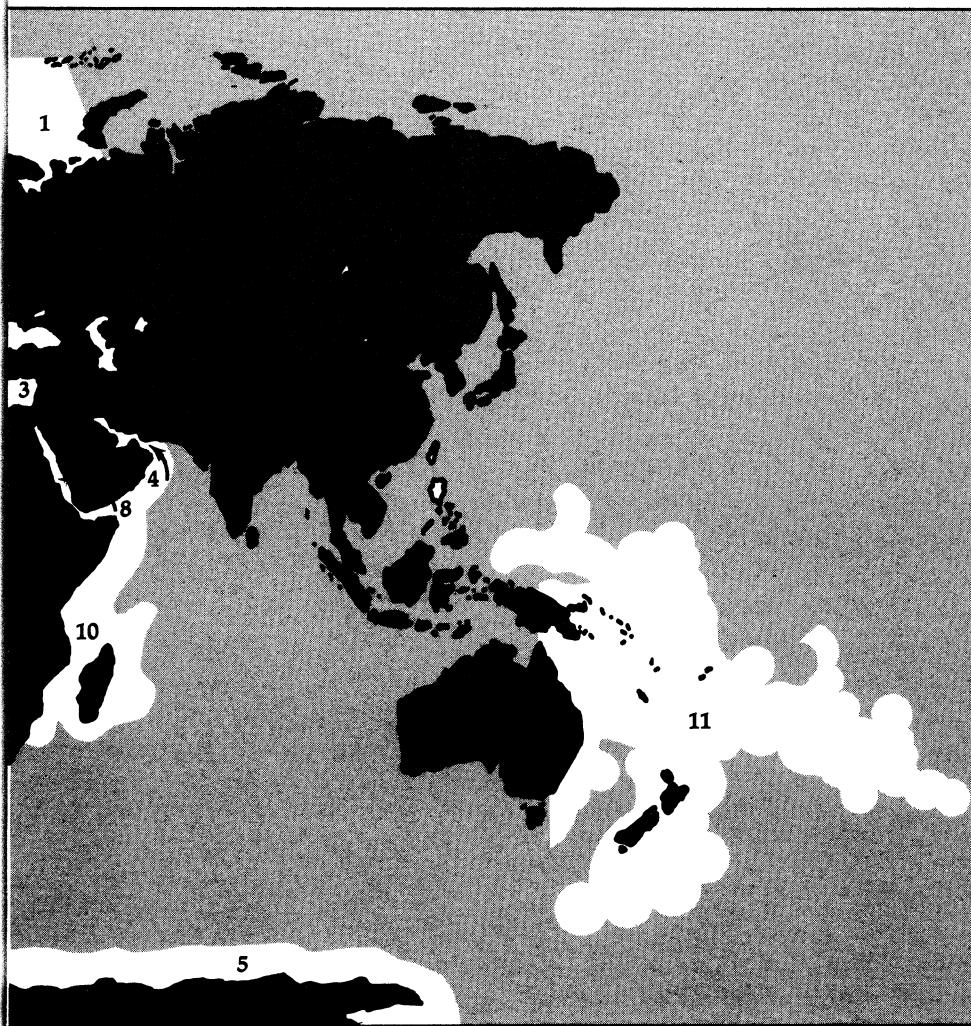
⁴³ Convention on the Protection of the Marine Environment of the Baltic Sea Area, Mar. 22, 1974, 13 I.L.M. 544 [hereinafter Convention on the Baltic]. Regional cooperation in the North Sea had been initiated by the 1969 Bonn Agreement for Cooperation in Dealing with Pollution of the North Sea by Oil, June 9, 1969, 704 U.N.T.S. 3 (extended to other harmful substances in 1983) and the 1972 Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, Feb. 15, 1972, 11 I.L.M. 262. See de Yturriaga, *Regional Conventions on the Protection of the Marine Environment*, 162 RECUEIL DES COURS DE L'ACADEMIE DE DROIT INTERNATIONAL [R.C.A.D.I.] 319 (1979); D. Fluharty, *International Regulation of Access to and Use of Resources in the Baltic Sea* (1977) (University of Michigan Ph.D. thesis); *COMPREHENSIVE SECURITY FOR THE BALTIC: AN ENVIRONMENTAL APPROACH* (A. Westing ed. 1989); OSLO AND PARIS COMMISSIONS (OSPARCOM), ANNUAL REPORT (June 1989); *The North Sea: Perspectives on Regional Environmental Co-operation*, 5 INT'L J. ESTUARINE & COASTAL L. 1-356 (1990) (edited by D. Freestone & T. Ijststra).

⁴⁴ Feb. 16, 1976, 15 I.L.M. 290 [hereinafter Convention on the Mediterranean]. See Boxer, *Mediterranean Pollution: Problem and Response*, 10 OCEAN DEV. & INT'L L. 315 (1982) (overview of cooperative international efforts to control pollution of the Mediterranean Sea); P. HAAS, *SAVING THE MEDITERRANEAN: THE POLITICS OF INTERNATIONAL ENVIRONMENTAL COOPERATION* (1990).

⁴⁵ See Johnston & Enomoto, *Regional Approaches to the Protection and Conservation of the Marine Environment*, in *THE ENVIRONMENTAL LAW OF THE SEA* 285-385 (D. Johnston ed. 1981); Boczek, *Global and Regional Approaches to the Protection and Preservation of the Marine Environment*, 16 CASE W. RES. J. INT'L. 39, 68-70 (1984). See generally Edwards, *Review of the Status of Implementation and Development of Regional Arrangements on Cooperation in Combating Marine Pollution*, in *INTERNATIONAL ENVIRONMENTAL DIPLOMACY* 229 (J. Carroll ed. 1988).

Figure 3. Map Showing Ocean Areas Covered by Regional Conventions for Marine Environment Protection.





grams for the Mediterranean, the Caribbean, the West-Central African coast, the Red Sea, the Gulf, and the Southeast Pacific.⁴⁶ And while UNEP's own global guidelines on offshore mining (1982) and on land-based marine pollution (1985)⁴⁷ generated little more than lip-service from governments,⁴⁸ many countries did accept specific regional commitments and emission standards under the UNEP-sponsored Athens (1980) and Quito (1983) protocols on pollution from land-based sources⁴⁹ and under the Kuwait (1989) protocol on pollution from exploration and exploitation of the continental shelf.⁵⁰

But if regionalization can raise the level of standards, it can also introduce further asymmetries or reinforce existing ones. Far from offering a panacea for all transnational environmental problems, regional regulation may be manifestly unsuitable for some. For instance, when the Organisation for Economic Cooperation and Development (OECD) in 1984 initiated a regional draft convention for transboundary shipments of hazardous wastes,⁵¹ it was able to draw on a higher level of solidarity and consensus among its membership (limited to Western industrialized states) than would have been conceivable under a worldwide treaty. On the other hand, it soon became clear that the very prospect of tightened waste controls in the OECD region had an undesired spill-over effect, reorienting trade flows to

⁴⁶ See P. SAND, MARINE ENVIRONMENT LAW IN THE UNITED NATIONS ENVIRONMENT PROGRAMME (Natural Resources and the Environment Series, No. 24, 1988) (texts and membership lists of the various conventions and protocols).

⁴⁷ *Id.* at 226, 235; see QING-NAN MENG, LAND-BASED MARINE POLLUTION: INTERNATIONAL LAW DEVELOPMENT 163–210 (1987).

⁴⁸ See U.N. Docs. UNEP/GC.13/9/Add.1 (1984) and UNEP/GC.15/9/Add.2 (1989) (progress reports to the UNEP Governing Council).

⁴⁹ P. SAND, *supra* note 46, at 27, 103. See S. KUWABARA, THE LEGAL REGIME OF THE PROTECTION OF THE MEDITERRANEAN AGAINST POLLUTION FROM LAND-BASED SOURCES (Natural Resources and the Environment Series, No. 15, 1984). For example, emission standards for mercury were adopted under the Athens Protocol in 1987. MEDWAVES, NO. 10/III, at 4 (1987). Limit values and water quality objectives for cadmium compounds and for DDT levels were adopted in 1989. MEDWAVES, NO. 18/III-IV, at 3–6 (1989).

⁵⁰ Signed on March 29, 1989, under the auspices of the UNEP-sponsored Regional Organization for the Protection of the Marine Environment (ROPME), pursuant to the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution, Apr. 24, 1978, 1140 U.N.T.S. 133. For a summary of ongoing cooperation, for instance on the occasion of oil spills as a result of military attacks on offshore platforms during the Iran-Iraq War, see Gerges, *Satellite in Action in ROPME Sea Area*, SIREN, Mar. 1989, at 23–26.

⁵¹ See OECD, TRANFRONTIER MOVEMENTS OF HAZARDOUS WASTES: PROCEEDINGS OF A SEMINAR ON LEGAL AND INSTITUTIONAL ASPECTS (held in Paris June 12–14, 1984) (1985); OECD WASTE MANAGEMENT POLICY GROUP, MONITORING AND CONTROL OF TRANFRONTIER MOVEMENTS OF HAZARDOUS WASTES: OECD ACTIVITIES 1983–1989, OECD Doc. ENV/WMP/89.4 (Sept. 1989).

countries outside the region that were unlikely to abide by OECD-imposed regulation.⁵² The OECD Member States eventually had to abandon their project in favor of a less ambitious but globally applicable regime under UNEP auspices, the 1989 Basel Convention.⁵³ However, with the Organization of African Unity (OAU) now drafting a separate regional agreement on the topic,⁵⁴ the waste trade issue will continue to provide trial-and-error lessons in transnational regime-building.

4. Promoting Over-Achievement

To be sure, the Basel Convention does not prevent additional regional action. Article 11 actually reserves the right of any party to enter into other arrangements that are "not less environmentally sound" than the agreed-upon global standards. The European Community has already announced its intention to implement the convention by tighter requirements,⁵⁵ as it previously did with such other treaties as the Council of Europe's 1968 Strasbourg Agreement on the Restriction of the Use of Certain Detergents in Washing and Cleaning Products.⁵⁶ (The Strasbourg Convention, which required detergents to be at least eighty percent "biodegradable," was upstaged by a 1973 European Economic Community (EEC) Detergents Directive requiring at least ninety percent biodegradability.)⁵⁷

⁵² See GREENPEACE INTERNATIONAL, INTERNATIONAL TRADE IN TOXIC WASTES: POLICY AND DATA ANALYSIS (2d ed. 1988). See generally 1-3 GREENPEACE, GREENPEACE WASTE TRADE UPDATE (1988-1990).

⁵³ See Basel Convention, *supra* note 31; see also OECD COUNCIL RESOLUTIONS C(89)1, JANUARY 30, 1989, AND C(89)112, JULY 20, 1989, OECD Doc. ENV/WMP/89.4 (Sept. 1989) (App. 1).

⁵⁴ ORGANIZATION OF AFRICAN UNITY, OAU RESOLUTION CM/RES. 1225(L), July 21, 1989.

⁵⁵ EEC to Revise Notification Scheme for Transboundary Shipments of Waste, 12 INT'L ENV'T REP. 531 (Nov. 8, 1989)(Revision of Council Directives 84/631/EEC (intra-Community shipments) and 86/279/EEC (exports from the Community), announced on October 4, 1989). On the previous regime see Kelly, *International Regulation of Transfrontier Hazardous Waste Shipments: A New EEC Environmental Directive*, 21 TEX. INT'L L.J. 977-96 (1985). The European Economic Community (EEC) also has agreed to ban all hazardous and radioactive waste exports to the 69 developing countries participating in the ACP-EEC Convention signed on December 15, 1989. See Cova, *Lome IV: une convention pour 10 ans*, 333 REVUE DU MARCHE COMMUN 1-2 (1990).

⁵⁶ SELECTED MULTILATERAL TREATIES IN THE FIELD OF THE ENVIRONMENT, UNEP REFERENCE SERIES No. 3, at 214 (A.C. Kiss ed. 1983); Amendment Protocol of October 25, 1983, 5 INTERNATIONAL ENVIRONMENTAL LAW: MULTILATERAL TREATIES 968:69/A/1, (W. Burhenne ed. 1985).

⁵⁷ Council Directive 73/404/EEC of November 22, 1973, on the Approximation of the Laws of the Member States Relating to Detergents, 16 O.J. EUR. COMM. (No. L 347) 51 (1973) (amended by Directive 86/94/EEC).

A number of environmental agreements expressly confirm the right of parties to take more stringent measures individually or collectively. Examples are the 1973 Endangered Species Convention, the 1985 Ozone Layer Convention, and its 1987 Montreal Protocol. Under "framework" conventions, this right is frequently exercised in optional additional protocols concluded between some parties only. Within the 1979 Geneva Convention on Long-range Transboundary Air Pollution,⁵⁸ a ten-member "club" of countries first moved ahead in 1984 by declaring a voluntary thirty percent reduction of sulphur emissions⁵⁹—a commitment not all of the thirty-one parties to the convention were prepared to share at that time. When the thirty percent reduction was formally adopted as a Protocol to the Convention at Helsinki in 1985, twenty-one states signed it.⁶⁰ During the negotiation of a further Protocol on nitrogen oxides in 1987, a club of five like-minded states again pressed for a thirty percent reduction target;⁶¹ and, even though the target did not become part of the Protocol finally signed at Sofia in 1988,⁶² twelve of the Protocol's twenty-five signatories eventually agreed to commit themselves to a voluntary thirty percent reduction.⁶³

⁵⁸ Nov. 13, 1979, 18 I.L.M. 1442 [hereinafter Geneva Convention on Air Pollution]. See E. CHOSSUDOVSKY, "EAST-WEST" DIPLOMACY FOR ENVIRONMENT IN THE UNITED NATIONS, U.N. Doc. E.88/XV/ST26 (1989) (United Nations Institute for Training and Research (UNITAR) study); G. WETSTONE & A. ROSENCRANZ, ACID RAIN IN EUROPE AND NORTH AMERICA: NATIONAL RESPONSES TO AN INTERNATIONAL PROBLEM (1983); Fraenkel, *The Convention on Long-Range Transboundary Air Pollution: Meeting the Challenge of International Cooperation*, 30 HARV. INT'L L.J. 447 (1989); Sand, *supra* note 33.

⁵⁹ Contained in a declaration adopted by the International Conference of Ministers on Acid Rain, Ottawa, March 21, 1984. 57 NETHERLANDS TRACTATENBLAD (1984); governmental statements made at the Multilateral Conference on the Environment, Munich, June 27, 1984. See J. MCCORMICK, ACID EARTH: THE GLOBAL THREAT OF ACID POLLUTION 79-83 (2d ed. 1989); Gündling, *Multilateral Cooperation of States Under the ECE Convention on Long-Range Transboundary Air Pollution*, in TRANSBOUNDARY AIR POLLUTION: INTERNATIONAL LEGAL ASPECTS OF THE COOPERATION OF STATES 19 (C. Flinterman, B. Kwiatkowska & J. Lammers ed. 1986).

⁶⁰ Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at Least 30%, Jan. 28, 1988, 27 I.L.M. 707; see also Vygen, *Air Pollution Control: Success of East-West Cooperation*, 15 ENVTL. POL'Y & L. 6-8 (1985); Björkbom, *Resolution of Environmental Problems: The Use of Diplomacy*, in INTERNATIONAL ENVIRONMENTAL DIPLOMACY 123 (J.E. Carroll ed. 1988).

⁶¹ NOTE ON DRAFT ARTICLE 2, WORKING GROUP ON NITROGEN OXIDES, REPORT OF THE SIXTH SESSION 3, U.N. Doc. EB.AIR/WG.3/12, Annex I (1987), reprinted in 17 ENVTL. POL'Y & L. 259 (1987); see Lammers, *supra* note 33, at 6; Mott, *Nitrogen Oxides*, 18 ENVTL. POL'Y & L. 52-53 (1988); Mott, *An Acid Rain Summons from Europe*, 5 ENVTL. F. No. 1, at 32-33 (1988).

⁶² Nitrogen Oxides Protocol, *supra* note 33; see also Fraenkel, *supra* note 58, at 472-75.

⁶³ Contained in a Declaration on the 30% Reduction of Nitrogen Oxide Emissions, October

In each of these cases, the initiative taken by a "club within the club" played a pilot role in overall target-setting. It also had a bandwagon effect, with other parties climbing aboard as it gathered political momentum.

By calling for states to reduce sulphur emission by at least thirty percent, the 1985 Helsinki Protocol had introduced an "upwardly mobile" dynamic target. Because national reduction achievements and pledges are recorded annually, compared internationally, and widely publicized, any over-achievement pays political dividends in terms of public attention and recognition.⁶⁴ As of 1988, twelve of the parties to the Helsinki Protocol thus reported that they had already reached the thirty percent target ahead of schedule, and ten parties announced that they would go on to reduce emissions by more than fifty percent (see Figure 4 and Table 1).⁶⁵

A similar trend can be documented for the Montreal Protocol on ozone-depleting substances. While the 1987 meeting had, after much bargaining, settled for CFC reductions of only fifty percent until 1999,⁶⁶ the London Conference pledge by the twelve-member European Community in March 1989 to eighty-five percent as soon as possible and 100 percent by the year 2000⁶⁷ led eventually to the Helsinki Declaration in May 1989—with eighty-two countries calling for a complete CFC phase-out by the end of the century.⁶⁸ This upward revision of the original bottomline was motivated partly by new scientific evidence of the "ozone hole,"⁶⁹ but media coverage and the worldwide publicity given to individual or collective pledges of over-achievement also proved influential.

31, 1988, reprinted in 18 ENVTL. POL'Y & L. 234 (1988) [hereinafter Nitrogen Oxide Emissions]; see Sand, *supra* note 33, at 255.

⁶⁴ See the country-by-country tables of over-achievement pledges in 15 AMBIO 48 (1986) and in 8 ACID MAGAZINE 5–6 (1989).

⁶⁵ UN ECONOMIC COMMISSION FOR EUROPE, THE STATE OF TRANSBOUNDARY AIR POLLUTION, AIR POLLUTION STUDIES NO. 5, at 14, U.N. Sales No. E.89.II.E.25 (1989) [hereinafter TRANSBOUNDARY AIR POLLUTION]. For a table of actual emission reductions between 1980 and 1986 (16.4 percent for Europe as a whole), see Iversen, *Some Recent Developments at the Meteorological Synthesizing Centre West (MS-W) of EMEP*, 3 MONITAIR 4 (1989).

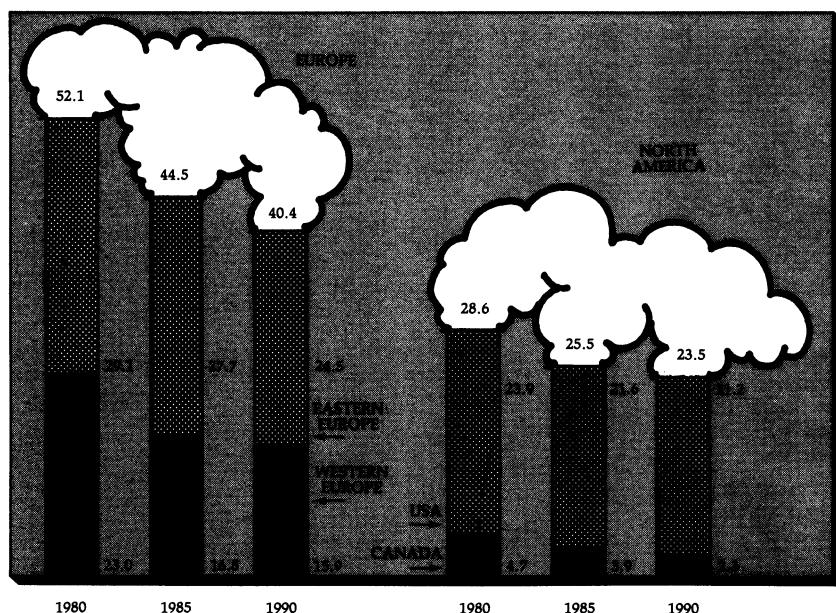
⁶⁶ Montreal Protocol, *supra* note 18, art. 2, para. 4, at 1552; see Lammers, *supra* note 33, at 8–14.

⁶⁷ Commission of the European Communities, WEEK IN EUR., Mar. 9, 1989, at WE/9/89. More recently, the EEC Commission has proposed to accelerate the schedule further, so as to phase out production of Chlorofluorocarbons (CFCs) by 1997 and of halons by 1998. See EUR. ENV'T, No. 335, Jan. 31, 1990, at 5.

⁶⁸ Helsinki Declaration on the Protection of the Ozone Layer, U.N. Doc. UNEP/OzL.Pro.1/5, Appendix I, reprinted in 28 I.L.M. 1335 (1989) [hereinafter Helsinki Declaration on Ozone].

⁶⁹ See G. LEAN, *supra* note 18, at 8–10.

Figure 4. Trends in Total Man-Made Emissions of Sulfur Dioxide in Europe and North America, 1980-1990 (Million Metric Tons of Sulfur Dioxide Per Year).



Source: Sand, note 32, p. 256

Legally, there is ample room for stricter national rules on bona fide environmental grounds—provided they are non-discriminatory—under article XX of the General Agreement on Tariffs and Trade (GATT)⁷⁰ and under the 1979 Tokyo Round's Agreement on Technical Barriers to Trade.⁷¹ The 1988 United States-Canadian

⁷⁰ General Agreement on Tariffs and Trade (GATT), Oct. 30, 1947, art. XX, 61 Stat. A3, A60, T.I.A.S. No. 1700, 55 U.N.T.S. 194, 262.

⁷¹ General Agreement on Tariffs and Trade: Technical Barriers to Trade, Apr. 12, 1979, art. 2.2, 31 U.S.T. 405, T.I.A.S. No. 9616, reprinted in 18 I.L.M. 1079, 1083 (1979) (GATT Standards Code in force since Jan. 1, 1980).

Where technical regulations or standards are required and relevant international standards exist or their completion is imminent, Parties shall use them, or the relevant parts of them, as a basis for the technical regulations or standards except where, as duly explained upon request, such international standards or relevant parts are inappropriate for the Parties concerned, for *inter alia* such reasons as national security requirements; the prevention of deceptive practices; protection for human

Table 1. Committed Sulphur Emission Reductions (in % of 1980 levels).

	ECE			EEC ³		
	1993 ¹	1995 ²	2000 ²	1993	1998	2003
Austria	-30	-69				
Belgium	-30	-48		-40	-60	-70
Bulgaria	-30					
Canada	-30	-36 ⁴	-33			
Czechoslovakia	-30	-31				
Denmark	-30	-57	-60	-34	-56	-67
Finland	-30	-52	-59			
France	-30	-57	-40	-40	-60	-70
German Dem. Rep.	-30					
Germany, Fed. Rep.	-30	-69		-40	-60	-70
Greece				+6	+6	+6
Hungary	-30					
Ireland		+15		+25	+25	+25
Italy	-30			-27	-39	-63
Luxembourg	-30	-42		-40	-50	-60
Netherlands	-30	-62	-77	-40	-60	-70
Norway	-30	-51				
Poland			-29			
Portugal				+102	+135	+79
Spain		-6		0	-24	-27
Sweden	-30	-69	-80			
Switzerland	-30	-54	-51			
USSR	-30 ⁵					
United Kingdom			-41	-20	-40	-60
Yugoslavia		-30 ⁶				

1. Helsinki Protocol (all emission sources)
2. Declared over-achievements (all emission sources)
3. Directive on large combustion sources
4. Including -50 for 7 Eastern provinces
5. European part, including -30 for Byelorussian and Ukrainian republics
6. Slovenian republic only

Free Trade Agreement similarly recognizes environmental restrictions as "legitimate domestic objectives."⁷²

In regional integration regimes, however, difficulties can arise. In

health or safety, animal or plant life or health, or the environment; fundamental climatic or geographical factors; fundamental technological problems.

Id.

⁷² Free-Trade Agreement, Dec. 22, 1987-Jan. 2, 1988, United States-Canada, art. 601, 27 I.L.M. 281, 316 (1988); *see also id.* at 352 (cross-reference to art. XX of GATT).

the EEC, for instance, there have been protracted quarrels over stricter national standards regarding fuel quality and engine emissions, and over national subsidies for the purchase of "clean cars."⁷³ Although article 130T of the EEC Treaty⁷⁴ as revised by the 1986 Single European Act⁷⁵ expressly authorizes more stringent national measures for environmental protection "compatible with this treaty,"⁷⁶ and article 100A(4) enables Member States to deviate from agreed-upon harmonization measures for environmental reasons,⁷⁷ a country planning to do so must first notify the EEC Commission (which may object in case of non-compatibility) so as to avoid arbitrary restraints of trade.⁷⁸ In the end, it is the trade regime that determines, if not the bottomline, at least the margin of tolerable asymmetries in the EEC's environmental regime.

B. Fast Tracks: How to Beat the Slowest-Boat Rule

Possibly the most serious drawback of the treaty method is the time lag between the drafting, adoption, and entry into force of standards. Besides the period of negotiation—which in the case of the Law of the Sea took fourteen years,⁷⁹ and in the case of the Ozone Layer Convention more than three years—a treaty, once signed, must undergo a lengthy process of national ratification by the required minimum number of countries before it can become effective.

A 1971 study by the United Nations Institute for Training and Research (UNITAR) showed⁸⁰ that there are definite patterns of

⁷³ In this context, the EEC Commission has initiated infringement proceedings under article 169 of the Treaty against Denmark, the Federal Republic of Germany, Greece, and the Netherlands. On the dispute with Denmark see Lomas, *supra* note 35, at 531; on the disputes over car emission standards see Hailbronner, *Der "nationale Alleingang" im Gemeinschaftsrecht am Beispiel der Abgasstandards für PKW*, 16 EUROPAISCHE GRUNDRECHTS-ZEITSCHRIFT 101–22 (1989).

⁷⁴ Treaty Establishing the European Economic Community, Mar. 25, 1957, 298 U.N.T.S. 11 [hereinafter EEC Treaty].

⁷⁵ 30 O.J. EUR. COMM. (No. L. 169) 1 (1987), reprinted in 25 I.L.M. 506 (1986) [hereinafter SEA]. For a discussion on the SEA, see Bermann, *The Single European Act: A New Constitution for the Community?*, 27 COLUM. J. TRANSNAT'L L. 529 (1989).

⁷⁶ SEA, *supra* note 75, art. 130T.

⁷⁷ EEC Treaty, *supra* note 74, art. 100A, para. 4, added by SEA, *supra* note 75, art. 18.

⁷⁸ Bermann, *supra* note 75, at 543–45 (citing EEC Treaty, *supra* note 74, art. 100A, para. 4, added by SEA, *supra* note 75, art. 18). See Scheuing, *Umweltschutz auf der Grundlage der Einheitlichen Europäischen Akte*, 24 EUROPARECHT 152, 152–92 (1989).

⁷⁹ See McDorman, *Reservations and the Law of the Sea Treaty*, 13 J. MAR. L. & COM. 481, 481–82 (1982).

⁸⁰ See UNITED NATIONS INSTITUTE FOR TRAINING AND RESEARCH, TOWARD WIDER

drag in treaty acceptance. Typically, multilateral treaties do not become effective until two to twelve years after formal agreement has been reached; the average "tempo of acceptance" for multilateral treaties, according to UNITAR, is about five years. While some—like the Law of the Sea Convention (which needs sixty ratifications)—still have not entered into force eight years after signature, most environmental treaties seem to be doing better. The Mediterranean Convention and the Ozone Layer Convention, for instance, took less than two years.

Considering the need for rapid action on most environmental problems, even two years may be too long. The chlorofluorocarbon (CFC) reduction rates agreed under the Montreal Protocol in September 1987 were already obsolete by the time the Protocol entered into force and had to be revised by recourse to a "fast-track" procedure not foreseen in the treaty—the Helsinki Declaration on the Protection of the Ozone Layer, adopted in May 1989.⁸¹

The traditional ratification process and its notorious delays can, however, be bypassed in a number of ways. Among the bypass devices used in international environmental practice are provisional treaty application, various "soft-law" options, and delegated law-making.

1. Provisional Treaty Application

Pending the formal entry into force of an international agreement, states may agree to bring it into operation on an interim basis. Provisional application is a recognized procedure under the Vienna Convention on the Law of Treaties;⁸² a classical example is GATT, which never legally came into force but has operated for more than forty years on the basis of a "protocol of provisional application."⁸³

ACCEPTANCE OF UN TREATIES 34–40 (1971). See also Churchill, *Why Do Marine Pollution Conventions Take So Long to Enter into Force?*, 4 MAR. POL'Y & MGMT. 41, 41–49 (1976).

⁸¹ Helsinki Declaration on Ozone, *supra* note 68. According to article 9(5) of the Vienna Convention, any textual amendment of the Montreal Protocol must be ratified by at least two-thirds of the Parties (i.e., currently 37 out of 55) to become legally binding. Vienna Convention on Ozone, *supra* note 30, art. 9, para. 4; see Montreal Protocol, *supra* note 18. It likely will take two years following the June 1990 amendment conference in London for the required number of parties to ratify the amendment. By contrast, had the reduction rates been laid down in an annex to the Protocol, their amendment would become effective six months after communication to the Parties. Vienna Convention on Ozone, *supra* note 30, art. 10, para. 2(c).

⁸² Vienna Convention on the Law of Treaties, *opened for signature* May 23, 1969, art. 25, 1155 U.N.T.S. 331, 338. "A treaty or part of a treaty is applied provisionally pending its entry into force if (a) the treaty itself so provides; or (b) the negotiating states have in some other manner so agreed." *Id.*

⁸³ Protocol of Provisional Application of the General Agreement on Tariffs and Trade, Oct.

In the environmental field, the signatories to the 1979 Geneva Convention on Long-range Transboundary Air Pollution⁸⁴ also decided—by separate resolution—to “initiate, as soon as possible and on an interim basis, the provisional implementation of the convention” and to “carry out the obligations arising from the convention to the maximum extent possible pending its entry into force.”⁸⁵ As a result, the executive body established by the Convention took up its functions initially as “Interim Executive Body,” holding regular annual meetings, creating subsidiary working groups, and the like, well before the Convention took force in 1983.⁸⁶

When adopting the first Protocol under the Convention in 1984 (on long-term financing of the European Monitoring and Evaluation Program (EMEP)),⁸⁷ the signatories again decided by resolution—pending the entry into force of the Protocol—“to contribute to financing of EMEP on a voluntary basis, in an amount equal to the mandatory contributions expected from them under the provisions of the Protocol if all signatories had become parties.”⁸⁸ Even though not all signatories complied, voluntary interim funding along these lines generated over \$3.4 million, enabling the EMEP program to operate effectively⁸⁹ until 1988, when the Protocol entered into force and contributions became mandatory.

The final act of the 1989 Basel Convention on Hazardous Wastes⁹⁰ took a similar, albeit more timid approach, with its resolution that

30, 1947, 61 Stat. A2051, T.I.A.S. No. 1700, 55 U.N.T.S. 308. See J. JACKSON, *WORLD TRADE AND THE LAW OF GATT* § 3.2 (1969); Hansen & Vermulst, *The GATT Protocol of Provisional Application: A Dying Grandfather?*, 29 COLUM. J. TRANSNAT'L L. 263 (1989); Roessler, *The Provisional Application of the GATT*, 19 J. WORLD TRADE L. 289 (1985).

⁸⁴ Geneva Convention on Air Pollution, *supra* note 58.

⁸⁵ Economic Commission for Europe, *Resolution on Long-Range Transboundary Air Pollution*, U.N. Doc. E/ECE/HLM.1/2, vol. I, Annex II (1980) (report of the high-level meeting within the framework of the ECE on the protection of the environment).

⁸⁶ See CHOSSUDOVSKY, *supra* note 58, at 122–41.

⁸⁷ Protocol to the 1979 Convention on Long-Range Transboundary Pollution, on Financing the Monitoring and Evaluation of Air Pollutants in Europe, Sept. 28, 1984, 24 I.L.M. 484 (1985).

⁸⁸ UN Economic Commission for Europe, *Resolution on Long-Term Financing of the Co-operative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (EMEP)*, U.N. Doc. E/ECE/EB.AIR/4, Annex III (1984) (Executive Body for the Convention on Long-range Transboundary Air Pollution, report of the second session).

⁸⁹ See Dovland, *Monitoring European Transboundary Air Pollution*, ENV'T, Dec. 1987, at 10–15, 27–28; Iversen, *supra* note 65; *The Third Phase of EMEP: 1984–1986*, in *TRANSBOUNDARY AIR POLLUTION*, *supra* note 65, at 19–38; UN Economic Commission for Europe, *EMEP: The Co-operative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe*, 34 ECON. BULL. EUR. 29 (1982).

⁹⁰ Basel Convention, *supra* note 31.

"until such time as the convention comes into force and appropriate criteria are determined, all states refrain from activities which are inconsistent with the objectives and purposes of the Convention,"⁹¹ and with other resolutions to establish preparatory technical working groups and an interim Secretariat with voluntary funding. This, too, may be considered a provisional application, born of the signatories' determination to avoid a potential "anarchic hiatus" created by ratification delays.

2. Soft Law Options

Alternatively, states may decide to forgo treatymaking altogether and to recommend, by joint declaration, common rules of conduct—usually referred to as "soft law" to distinguish them from the "hard law" of formal legal agreements.⁹² Environmental diplomacy has produced a wide variety of such declaratory instruments and resolutions. Their recognized practical advantage is that since they are not subject to national ratification, they can take instant effect. Their inherent risk, however, is precisely that lack of formality that makes them attractive as a shortcut. To illustrate the quandary, no sooner had the 1988 Declaration on the 30 Percent Reduction of Nitrogen Oxide Emissions⁹³ been signed at Sofia on behalf of the Federal Republic of Germany by its Minister for the Environment, than the State Secretary for Economic Affairs publicly questioned the legal force of the declaration.⁹⁴

One of the most prolific makers of soft law has been the UNEP Governing Council. Since 1978, the UNEP has addressed a whole series of "environmental law guidelines and principles" to states,⁹⁵ drafted in typical treaty language except for the copious use of "should" in place of "shall." Once adopted by ad hoc groups of experts nominated by governments, these provisions normally are approved

⁹¹ *Id.*, Res. 4, adopted Mar. 22, 1989. "Responsibility of States for the Implementation of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal." *Id.*

⁹² See Chinkin, *The Challenge of Soft Law: Development and Change in International Law*, 38 INT'L. & COMP. L.Q. 850 (1989). For application of the concept to the environment, see A. KISS, SURVEY OF CURRENT DEVELOPMENTS IN INTERNATIONAL ENVIRONMENTAL LAW 23 (International Union for Conservation of Nature and Natural Resources (IUCN), Environmental Policy and Law Paper No. 10 (1976)).

⁹³ Nitrogen Oxide Emissions, *supra* note 63.

⁹⁴ DER SPIEGEL, Jan. 30, 1989, at 94.

⁹⁵ P. Sand, *Environmental Law in the United Nations Environment Programme*, in THE FUTURE OF THE INTERNATIONAL LAW OF THE ENVIRONMENT 51, 56–60 (R.J. Dupuy ed. 1985).

by the UNEP Governing Council for submission to the UN General Assembly, which either incorporates them in a resolution (as in the case of the 1982 World Charter for Nature)⁹⁶ or, less solemnly, recommends them to states for use in the formulation of international agreements or national legislation (as in the case of the 1982 Conclusions of the Study of Legal Aspects Concerning the Environment Related to Offshore Mining and Drilling Within the Limits of National Jurisdiction).⁹⁷ In a number of cases, however, promulgation did not go beyond the level of a UNEP Governing Council decision (e.g., the 1980 *Provisions for Co-operation Between States on Weather Modification*).⁹⁸

Soft law may be "hardened" by later international practice. When the government of Uganda, under gentle World Bank pressure, had to consult other Nile Basin countries on a proposed water use project for Lake Victoria in December 1983, it did so by way of reference to, among other documents, the 1978 UNEP *Principles of Conduct in the Field of the Environment for the Guidance of States in the Conservation and Harmonious Utilization of Natural Resources Shared by Two or More States*.⁹⁹ Three months later, the governments of Egypt and Sudan in their replies in turn referred to the guidelines as "jointly honored principles of cooperation," thereby quietly promoting them to the status of common regional standards.¹⁰⁰

UNEP soft law instruments have also served as forerunners of treaty law (as in the case of the 1985/1987 *Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes*,¹⁰¹ which led up to the 1989 Basel Convention)¹⁰² and as

⁹⁶ G.A. Res. 37/7 (1982). See W. BURHENNE & W. IRWIN, THE WORLD CHARTER FOR NATURE: A BACKGROUND PAPER (1983); Wood, *The United Nations World Charter for Nature: The Developing Nations' Initiative to Establish Protections for the Environment*, 12 ECOLOGY L.Q. 977 (1985).

⁹⁷ G.A. Res. 37/217 (1982). For text of the conclusions, see P. SAND, *supra* note 46, at 226.

⁹⁸ U.N. Doc. UNEP/GC/8/7/A (1980).

⁹⁹ U.N. Doc. UNEP/GC/6/14 (1978). See J. BARBERIS, LOS RECURSOS NATURALES COMPARTIDOS ENTRE ESTADOS Y EL DERECHO INTERNACIONAL 147 (1979); Adede, *United Nations Efforts Toward the Development of an Environmental Code of Conduct for States Concerning Harmonious Utilization of Shared Natural Resources*, 43 ALB. L. REV. 488 (1979); Riphagen, *The International Concern for the Environment as Expressed in the Concept of the 'Common Heritage of Mankind' and of 'Shared Natural Resources'* (IUCN Environmental Policy and Law Paper No. 15), in TRENDS IN ENVIRONMENTAL POLICY AND LAW 343 (M. Bothe ed. 1980).

¹⁰⁰ See U.N. Doc. UNEP/GC/13/9/Add.1, at 7 (1984) (progress report to the UNEP Governing Council).

¹⁰¹ U.N. Doc. UNEP/GC/14/30 (1987).

¹⁰² Basel Convention, *supra* note 31.

mandate for new mechanisms of intergovernmental cooperation (as in the case of the 1984 *Provisional Notification Scheme for Banned and Severely Restricted Chemicals*).¹⁰³ Environmental recommendations by other international organizations have played a similar role, especially those of the OECD.

Even soft law declarations by non-governmental expert groups may attain reference status, with or without intergovernmental blessing. The International Law Association's 1966 "Helsinki Rules" on the uses of the waters of international rivers¹⁰⁴ did just that. A more recent example is the set of *Proposed Legal Principles for Environmental Protection and Sustainable Development* appended to the 1987 Brundtland Report to the UN General Assembly.¹⁰⁵ Others are the guidelines for drinking-water quality¹⁰⁶ and ambient air quality¹⁰⁷ published under the auspices of the World Health Organization; though drafted by ad hoc expert groups and never intergovernmentally adopted, they became a reference source for national standard-setting and a yardstick for comparative evaluation of environmental quality,¹⁰⁸ largely by virtue of the organization's prestige. Similarly, a number of worldwide technical standards for measuring environmental parameters are laid down and updated by the International Organization for Standardization (ISO). This organization ranks as "non-governmental"—even though more than seventy percent of its members are national public standards authorities—and its system of voting by correspondence is not subject to any diplomatic clearance or ratification.¹⁰⁹

¹⁰³ U.N. Doc. UNEP/GC/12/14 (1984); *see also infra* text accompanying note 210.

¹⁰⁴ INTERNATIONAL LAW ASSOCIATION, REPORT OF THE FIFTY-SECOND CONFERENCE IN HELSINKI, 1966, at 484 (1967).

¹⁰⁵ OUR COMMON FUTURE, *supra* note 3. *See also* EXPERTS GROUP ON ENVIRONMENTAL LAW OF THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT, ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT: LEGAL PRINCIPLES AND RECOMMENDATIONS (1986).

¹⁰⁶ *See* 1-3 WORLD HEALTH ORGANIZATION, GUIDELINES FOR DRINKING-WATER QUALITY (1984-1985); *see* SETTING ENVIRONMENTAL STANDARDS: GUIDELINES FOR DECISION-MAKING 10, Annex 6 (H. de Koning ed. 1987).

¹⁰⁷ *E.g.*, WORLD HEALTH ORGANIZATION, AIR QUALITY GUIDELINES FOR EUROPE, REGIONAL PUBLICATIONS: EUROPEAN SERIES No. 23 (1987); WORLD HEALTH ORGANIZATION, OXIDES OF NITROGEN, PHOTOCHEMICAL OXIDANTS, SULPHUR OXIDES AND SUSPENDED PARTICULATE MATTER, ENVIRONMENTAL HEALTH CRITERIA DOCUMENTS 4, 7, 8 (1977-1979).

¹⁰⁸ For WHO air quality standards, *see* H. FRENCH, CLEARING THE AIR: A GLOBAL AGENDA 9-16 (Worldwatch Paper No. 94) (1990); UNITED NATIONS ENVIRONMENT PROGRAMME, ENVIRONMENTAL DATA REPORT 1989-90, at 13 (1989); WORLD RESOURCES INSTITUTE, WORLD RESOURCES 1988-89, at 333, 345 (1988).

¹⁰⁹ Uniform standards are prepared by technical expert committees (*e.g.*, for ambient air quality measurement by ISO Technical Committee 146), circulated to all member bodies for

3. Delegated Lawmaking

Another way of bypassing ratification is to delegate the powers to adopt and regularly amend "technical standards" to a specialized intergovernmental body. This technique was gradually developed and refined by several global and regional organizations that had to cope with frequent technological change: the International Telecommunication Union (ITU),¹¹⁰ the Universal Postal Union (UPU),¹¹¹ and a number of European conventions on rail and road transport¹¹² each placed their international standards in separate "technical annexes" or "regulations" that are periodically revised in intergovernmental meetings without having to be ratified. Among the most advanced and smoothly functioning regulatory regimes so developed are the "international health regulations" of the World Health Organization (WHO),¹¹³ the "standard meteorological practices and procedures" of the World Meteorological Organization (WMO),¹¹⁴ the standards for facilitating international maritime traffic, enacted by the International Maritime Organization (IMO),¹¹⁵ and the interna-

voting by correspondence, and, if 75% of the votes cast are in favor, published by the ISO Council as accepted international standards. See INTERNATIONAL ELECTROTECHNICAL COMMISSION & INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, DIRECTIVES: PROCEDURES FOR THE TECHNICAL WORK 14-23 (Part 1, 1989); L. VERMAN, STANDARDIZATION: A NEW DISCIPLINE (1973).

¹¹⁰ International Telegraphic Convention, art. 13, *signed at St. Petersburg* 1875, reprinted in 7 AM. J. INT'L L. 296 (Supp. 1913). The method of "technical" adjustments proved so effective that the Convention did not require diplomatic revision until 1932, when it was combined with the Radiotelegraphic Convention into the present International Telecommunication Union (ITU) Convention. See G. CODDING, THE INTERNATIONAL TELECOMMUNICATION UNION: AN EXPERIMENT IN INTERNATIONAL CO-OPERATION 28 (1952); E. YEMIN, LEGISLATIVE POWERS IN THE UNITED NATIONS AND SPECIALIZED AGENCIES 63-84 (1969).

¹¹¹ Treaty Concerning the Formation of a General Postal Union, art. XIII, *signed at Bern* 1874. See G. CODDING, THE UNIVERSAL POSTAL UNION 107 (1964); E. YEMIN, *supra* note 110, at 85-113.

¹¹² For example, article 60(2) of the 1924 Bern Conventions Concerning the Transport of Goods by Rail (CIM), 77 L.N.T.S. 367, and the Transport of Passengers and Luggage by Rail (CIV), Oct. 23, 1924, 78 L.N.T.S. 17, and article 14(3) of the 1957 UN/ECE European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), *opened for signature* Sept. 30, 1957, 619 U.N.T.S. 79 (technical annexes as amended through 1990, U.N. Sales No. E.89.VIII.2).

¹¹³ CONSTITUTION OF WORLD HEALTH ORGANIZATION, *opened for signature* July 22, 1946, art. XXI, 61 Stat.(3) 2679, T.I.A.S. No. 1808, 14 U.N.T.S. 185. See D. LEIVE, 1 INTERNATIONAL REGULATORY REGIMES: CASE STUDIES IN HEALTH, METEOROLOGY, AND FOOD 3-152 (1976); YEMIN, *supra* note 110, at 181-205; Jacobini, *The New International Sanitary Regulations*, 46 AM. J. INT'L L. 727-28 (1952).

¹¹⁴ CONSTITUTION OF WORLD METEOROLOGICAL ORGANIZATION art. 7(d), 10(b), 1947, 77 U.N.T.S. 143. See I. DETTER, LAW MAKING BY INTERNATIONAL ORGANIZATIONS 228-34 (1965); LEIVE, *supra* note 113, at 232-326; YEMIN, *supra* note 110, at 161-80.

¹¹⁵ Convention on Facilitation of International Maritime Traffic, art. 7, Apr. 9, 1965, 591

tional food standards of the Codex Alimentarius Commission, a joint technical body of WHO and the Food and Agriculture Organization of the United Nations (FAO).¹¹⁶

The efficacy of "ecostandards"¹¹⁷ in expediting transnational decisionmaking is now widely recognized.¹¹⁸ Simplified (unratified) amendments of standards contained in technical annexes (as distinct from formal amendments of the main treaty provisions) are used in a wide range of global regimes for environmental standard-setting,¹¹⁹ as well as in several regional agreements, including those for protecting the Baltic and the Mediterranean marine environment.¹²⁰

U.N.T.S. 265. See Alexandrowicz, *The Convention on Facilitation of International Maritime Traffic and International Technical Regulation: A Comparative Study*, 15 INT'L & COMP. L.Q. 621-38 (1966). On the influence of International Civil Aviation Organization (ICAO) practice, *infra* notes 125-32, see C. ALEXANDROWICZ, THE LAW-MAKING FUNCTIONS OF THE SPECIALIZED AGENCIES OF THE UNITED NATIONS (1973); Erler, *Regulatory Procedures of ICAO as a Model for IMCO*, 10 MCGILL L.J. 262-68 (1964). On efforts to cope with the problem of ratification delays in subsequent International Maritime Organization (IMO) conventions on marine pollution, *infra* note 147, see Sielen & McManus, *IMCO and the Politics of Ship Pollution*, in D. KAY & H. JACOBSEN, ENVIRONMENTAL PROTECTION: THE INTERNATIONAL DIMENSION 140-83, 152-53, 172-74 (1983).

¹¹⁶ See 2 LEIVE, *supra* note 118, at 375-541; Dobbert, *Decisions of International Organizations—Effectiveness in Member States: Some Aspects of the Law and Practice of FAO*, in THE EFFECTIVENESS OF INTERNATIONAL DECISIONS 206, at 238-56 (S. Schwebel ed. 1971).

¹¹⁷ Contini & Sand, *Methods to Expedite Environment Protection: International Ecostandards*, 66 AM. J. INT'L L. 37-59 (1972) (originally submitted as a preparatory document for the UN Conference on the Human Environment, U.N. Doc. A/CONF.48/PC.II/CRP.3 (1971)); Sand, *The Creation of Transnational Rules for Environmental Protection*, in TRENDS IN ENVIRONMENTAL POLICY AND LAW, IUCN ENVIRONMENTAL POLICY AND LAW PAPER NO. 15, at 311-20 (M. Bothe ed. 1980).

¹¹⁸ See, e.g., Abdelhady, *Nécessité d'établir des normes uniformes relatives à l'environnement*, 41 R. EGYPTIENNE D. INT'L 1-28 (1985); Bothe, *The Trends in Both National and International Politics for Achieving a Unification of Standards in Pollution Matters*, 2 ZEITSCHRIFT FÜR UMWELTPOLITIK 293-312 (1979); Cumberland, *The Role of Uniform Standards in International Environmental Management*, in PROBLEMS OF ENVIRONMENTAL ECONOMICS 239-53 (OECD 1972); Dupuy, *Le droit international de l'environnement et la souveraineté des états: bilan et perspective*, in THE FUTURE OF THE INTERNATIONAL LAW OF THE ENVIRONMENT 29, 35-37 (R.J. Dupuy ed. 1985); Vukasovic, *Ekologiski standardi i razvoj [Ecological Standards and Development]*, 35 MEDUNARODNI PROBLEMI 47-58 (1983). On regional harmonization of environmental standards in the European Community, see Rehbinder & Stewart, *Legal Integration in Federal Systems: European Community Environmental Law*, 33 AM. J. COMP. L. 371 (1985).

¹¹⁹ Contini & Sand, *supra* note 117, at 55 n.117, which includes health standards, *supra* note 113; food quality standards, *supra* note 116; conservation standards for protected areas, *supra* note 20; conservation standards for marine living resources, *supra* notes 22-24; radiation protection standards under article 3 of the Statute of the International Atomic Energy Agency, Oct. 26, 1956, 8 U.S.T. 1093, T.I.A.S. No. 3873, 276 U.N.T.S. 3; and aircraft emission standards, *infra* note 126.

¹²⁰ See Convention on the Baltic, art. 24, *supra* note 43; Convention on the Mediterranean, *supra* note 44, art. 17; Kuwabara, *supra* note 49. On the mutual influence of these two conventions during their drafting stage, see Sand, *The Rise of Regional Agreements for*

Expeditious as it may be, bypassing ratification also means bypassing traditional parliamentary controls—raising the important question whether delegated transnational standard-setting poses a “threat to the democratic process.”¹²¹ Different environmental regimes have come up with different answers to this question. One option is to entrust new control functions to a “supranational” parliamentary body such as the independently elected European Parliament, whose Environment Committee has begun to play an important watchdog role in the European Community’s lawmaking process.¹²² The alternative is to require national endorsement—still short of full ratification—for agreed-upon international standards, either through affirmative acceptance by governments (as in the case of the international food standards of the Codex Alimentarius Commission),¹²³ or by providing the possibility for dissenting states to “opt out” of a standard or amendment by a specified date (as stipulated, for instance, in the constitutions of the WHO, the WMO, the UN conventions on narcotic drugs, and in several international fisheries agreements).¹²⁴

This opting-out procedure already has been applied in global pollution control. Consider the adoption and amendment of technical annexes under the 1944 Chicago Convention on International Civil Aviation.¹²⁵ Under articles 37 and 54 of the Convention, worldwide

Marine Environment Protection, in THE LAW AND THE SEA: ESSAYS IN MEMORY OF JEAN CARROZ 223 (1987), reprinted in 39 INT'L DIG. HEALTH LEGIS. 499–513 (1988).

¹²¹ Kaiser, *Transnational Relations as a Threat to the Democratic Process*, 25 INT'L ORG. 706 (1971).

¹²² In response to a 1983 resolution, the EEC Commission now submits annual reports to Parliament on the application of Community law. The sixth report (for the year 1988) was published in the 32 O.J. EUR. COMM. (No. C 330) 1 (1989). For a summary of the section on environmental law, see 335 EUR. ENV'T 1 (1990). On the increased powers of the European Parliament under the 1986 SEA, see Bermann, *supra* note 75, at 575–83; Lew, *The EEC Legislative Process: An Evolving Balance*, 27 COLUM. J. TRANSNAT'L L. 679 (1989); for the environmental implications, see Scheuing, *supra* note 78.

¹²³ See D. LEIVE, *supra* note 113, vol. II, at 461–84; Dobbert, *supra* note 116, at 250–56.

¹²⁴ See Contini & Sand, *supra* note 117, at 49–52. Opting out or “contracting out” has been practiced by international organizations for more than a century, and actually goes back to the 1874 Bern Treaty establishing the Universal Postal Union. See *supra* note 111; Codding, *Contributions of the World Health Organization and the International Civil Aviation Organization to the Development of International Law*, 59 PROCEEDINGS AM. SOC'Y INT'L L. 147, 152 (1965).

¹²⁵ Dec. 7, 1944, 59 Stat. 1516, E.A.S. No. 469, 15 U.N.T.S. 295 [hereinafter Civil Aviation Convention]. See T. BUERGENTHAL, LAW-MAKING IN THE INTERNATIONAL CIVIL AVIATION ORGANIZATION 76–101 (1969). The simplified amendment procedure goes back to the “technical regulations” under article 34 of the 1919 Paris Convention on the Regulation of Air Navigation, Oct. 13, 1919, III Redmond 3768, 11 L.N.T.S. 173, which, via article 61 of the 1933 International Sanitary Convention for Aerial Navigation, Apr. 12, 1933, 49 Stat. 3279, T.S. No. 901,

standards on aircraft noise and aircraft engine emissions have been laid down since 1981¹²⁶ by the Council of the International Civil Aviation Organization (ICAO). (The Council is elected every three years by the 162 Member States represented in the ICAO Assembly; its thirty-three members¹²⁷ must take up full-time residence in Montreal at the organization's headquarters¹²⁸—not unlike elected representatives in a national parliament.) Once adopted in the Council by a two-thirds majority vote,¹²⁹ an annex becomes mandatory—without ratification—for all states that do not within sixty days notify the Council of their intention to apply different national rules¹³⁰ and for all air traffic over the high seas.¹³¹ This flexible “tacit consent” procedure, designed specifically to reconcile the divergent requirements of developed and developing nations,¹³² makes it comparatively easy to adjust technical standards by majority decision without forcing complete uniformity.

The ICAO method of standard-setting is probably the closest thing to global environmental legislation developed so far—“a new category of international legal rules . . . which, strictly speaking, are neither customary nor contractual.”¹³³ All the evidence suggests that

161 L.N.T.S. 65, in turn became the model for the WHO international health regulations, *supra* note 113.

¹²⁶ ICAO, *International Standards and Recommended Practices on Environmental Protection*, Civil Aviation Convention, *supra* note 125, annex 16, vol. II (1981), amended March 4, 1988 (aircraft engine emissions). Volume I of annex 16 (1971, 2d ed. 1988) deals with aircraft noise standards; see Goy, *La lutte de l'OACI contre le bruit des aeronefs*, 2 ENVTL. POL'Y & L. 72–76 (1976). For stricter EEC standards, see ECE Council Directive 89/629, 32 O.J. EUR. COMM. (No. L 363) 27 (1989).

¹²⁷ According to a proposal for amendment of article 50(a), introduced at the 27th ICAO Assembly in 1989 for submission to an extraordinary assembly in 1990, the number of Council members is expected to be increased to 36.

¹²⁸ Pursuant to a 1947 decision of the ICAO Assembly. See Mankiewicz, *Organisation de l'aviation civile internationale*, 2 ANNUAIRE FRANÇAIS DE DROIT INTERNATIONAL 643, 650 (1956).

¹²⁹ Civil Aviation Convention, *supra* note 125, art. 90.

¹³⁰ *Id.* art. 38.

¹³¹ *Id.* art. 12; see Carroz, *International Legislation on Air Navigation Over the High Seas*, 26 J. AIR L. & COM. 158 (1959).

¹³² When the membership of the 1919 Paris Convention on the Regulation of Air Navigation, *supra* note 125, was expanded in the 1930s to include a number of developing countries, it became apparent that many of these were technologically unable to comply with some advanced international aviation standards and consequently had to be given an option to follow their own standards, provided due notice was given to this effect. Gradually, this practice developed into a flexible system of “notification of national departures” from worldwide standards, eventually codified in present article 38 of the 1944 Chicago Convention, which Buergenthal, *supra* note 125, at 221, labels “real genius”; see also Thayer, *International Air Transport: A Microsystem in Need of New Approaches*, 25 INT'L ORG. 875, 884 (1971).

¹³³ Skubiszewski, *Enactment of Law by International Organizations*, 41 BRIT. Y.B. INT'L



INTERNATIONAL CIVIL AVIATION ORGANIZATION
INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

ENVIRONMENTAL PROTECTION

ANNEX 16 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

VOLUME II AIRCRAFT ENGINE EMISSIONS

FIRST EDITION—1981

This first edition of Volume II of Annex 16 was adopted by the Council on 30 June 1981 and becomes applicable on 18 February 1982.

(Amendment 1 of 4 March 1988 applicable 17 November 1988)

CHAPTER 2. TURBO-JET AND TURBOFAN ENGINES INTENDED FOR PROPULSION ONLY AT SUBSONIC SPEEDS

...

2.3 Gaseous Emissions

2.3.1 The provisions of 2.3.2 shall apply to engines whose rated output is greater than 26.7 kN and whose date of manufacture is on or after 1 January 1986.

2.3.2. Gaseous emission levels when measured and computed in accordance with the procedures of Appendix 3 and converted to characteristic levels by the procedures of Appendix 6 shall not exceed the regulatory levels determined from the following formulas:

Hydrocarbons (HC):	$D_p/F\infty = 19.6$
Carbon monoxide (CO):	$D_p/F\infty = 118$
Oxides of nitrogen (NO_x):	$D_p/F\infty = 40 + 2\pi\infty$

D_p The mass of any gaseous pollutant emitted during the reference emissions landing and take-off cycle

tions at ISA sea level static conditions without the use of water injection as approved by the certifying authority. Thrust is expressed in kilonewtons.

$F\infty$ *Rated output.* For engine emissions purposes, the maximum power/thrust available for take-off under normal operating condi-

$\pi\infty$ Reference pressure ratio—*Methods of measuring reference pressure ratio are given in Appendix 1.*



CONVENTION ON INTERNATIONAL CIVIL AVIATION CONVENTION RELATIVE A L'AVIATION CIVILE INTERNATIONALE CONVENIO SOBRE AVIACION CIVIL INTERNACIONAL

Article 38

Departures from international standards and procedures

Any State which finds it impracticable to comply in all respects with any such international standard or procedure, or to bring its own regulations or practices into full accord with any international standard or procedure after amendment of the latter, or which deems it necessary to adopt regulations or practices differing in any particular respect from those established by an international standard, shall give immediate notification to the International Civil Aviation Organization of the differences between its own practice and that established by the international standard. In the case of amendments to international standards, any State which does not make the appropriate amendments to its own regulations or practices shall give notice to the Council within sixty days of the adoption of the amendment to the international standard, or indicate the action which it proposes to take. In any such case, the Council shall make immediate notification to all other states of the difference which exists between one or more features of an international standard and the corresponding national practice of that State.

Pursuant to article 38,

—24 member states notified ICAO of their national *compliance* with the environmental protection standards of Annex 16/II as amended in 1988

(Argentina, Australia, Austria, Bahrain, Bangladesh, Barbados, Chile, Cuba, Cyprus, Denmark, El Salvador, Ethiopia, Fiji, Finland, Gambia, Kenya, Niger, Peru, Portugal, Solomon Islands, Sweden, Switzerland, Uruguay, Vanuatu)

—10 member states notified ICAO of national *differences* with regard to Annex 16/II as amended

(Canada, Federal Republic of Germany, Italy, Japan, Malawi, Netherlands, Saudi Arabia, Singapore, United Kingdom, United States of America)

—128 member states, after expiry of the notification period, are presumed to have *tacitly accepted* Annex 16/II as amended.

this regime copes successfully both with the "bottomline" syndrome (by facilitating upward revision) and with the "slowest-boat" syndrome (by dispensing with ratification). The net result is, in Derek Bowett's words, "[no] dramatic change in the basic rule of international law that states assume new obligations only with their consent, but rather a pattern of procedures for improving the chances of a decision of the majority (be it simple or two-thirds) of a 'legislative' character securing general consent."¹³⁴

III. INNOVATIONS IN IMPLEMENTATION

Once international standards have been set, institutions are needed to authorize or prohibit activities covered by the standards, and to impose sanctions against non-compliance. Unfortunately, most international environmental standards come without the necessary regulatory or judicial authority to apply them. A number of recent initiatives—such as the Declaration of the Hague, signed by representatives of twenty-four countries in March 1989¹³⁵—have called for "new institutional authority" to set and implement environmental standards. But without radical reforms in world government, transnational regimes for environmental governance still have to cope with a dual handicap.

First, in the absence of a supranational regulatory institution, only national institutions can license authorized activities (including assessment of their environmental impact). To the extent that these institutions apply agreed-upon international standards for this purpose, they may be said to act on behalf of the international community—by way of "dédoulement fonctionnel," as Georges Scelle called it.¹³⁶ Yet, the relationship of these national licensing bodies with each other is strictly non-hierarchical, requiring far more complex procedures of reciprocity than needed when applying national standards.

Second, there is currently no compulsory jurisdiction for settling disputes over most multilateral environmental regimes. In most of the global agreements concluded since the 1970s, each party can prevent a case from being taken to arbitration or to the International

L. 198, 273 (1968). See also Skubiszewski, *Forms of Participation of International Organizations in the Lawmaking Processes*, 18 INT'L ORG. 790 (1964).

¹³⁴ D. BOWETT, THE LAW OF INTERNATIONAL INSTITUTIONS 146 (4th ed. 1982).

¹³⁵ Hague Declaration on the Environment, Mar. 11, 1989, 28 I.L.M. 1308, 1309. See also Sands, *The Environment, Community and International Law*, 30 HARV. INT'L L.J. 393 (1989).

¹³⁶ G. SCELLE, PRECIS DE DROIT DES GENS 43 (pt. I 1932).

Court of Justice in The Hague, since submission of disputes to third-party adjudication usually requires "common agreement."

Initially, these veto clauses were inserted at the insistence of the USSR and other East European countries that refused to accept compulsory third-party adjudication, deeming it an infringement on their sovereignty. More recently, in the wake of its rather painful court experience in the *Nicaragua* case,¹³⁷ the United States became the champion of the jurisdiction veto. In a bout of "Hague phobia," starting with the 1983 Cartagena Conference of Plenipotentiaries on the Protection and Development of the Marine Environment of the Wider Caribbean Region,¹³⁸ the United States State Department introduced a new variety of dispute settlement clauses in all UNEP conventions that reserve each party's right to block third-party adjudication while leaving open an option to waive the veto right upon signing the treaty. This United States-inspired veto clause was also introduced—against strong resistance from sixteen other Western countries favoring more stringent third-party adjudication¹³⁹—in the 1985 Vienna Convention for the Protection of the Ozone Layer,¹⁴⁰ and in the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention).¹⁴¹

¹³⁷ Military and Paramilitary Activities in and against Nicaragua (*Nicaragua v. United States*), 24 I.L.M. 59 (1985). See also United States: Statement on the U.S. Withdrawal from the Proceedings Initiated by Nicaragua in the International Court of Justice, 24 I.L.M. 246 (1985); Editorial Comment, 79 AM. J. INT'L L. 312 (1985). For a succinct summary, see Akehurst, *Nicaragua v. United States of America*, 27 INDIAN J. INT'L L. 357 (1987).

¹³⁸ Mar. 24, 1983, art. 23, 22 I.L.M. 221; see also Frazer & Peterson, *Protecting Caribbean Waters: The Cartagena Convention*, 27 OCEANUS 85 (1984); Bundschuh, *Transfrontier Pollution—Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region—Agreement Involving Collective Response to Marine Pollution Incidents and Long Range Environmental Planning*, 14 GA. J. INT'L & COMP. L. 201 (1984).

¹³⁹ U.N. Doc. UNEP/IG.53/5/Rev.1 (1985) (appended to the Final Act of the Vienna Conference of Plenipotentiaries on the Protection of the Ozone Layer). The first paragraph reads:

The delegations of Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany (Federal Republic of), Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, and United Kingdom of Great Britain and Northern Ireland express their regret at the absence from the Vienna Convention for the Protection of the Ozone Layer of any provision for the compulsory settlement of disputes by third parties, at the request of one party. Consistently with their traditional support for such a procedure, these delegations appeal to all Parties to the Convention to make use of the possibility of a declaration under article 11, paragraph 3, of the Convention.

Id.

¹⁴⁰ See Vienna Convention on Ozone, *supra* note 30, art. 11, at 1533. This provision also applies to the 1987 Montreal Protocol, pursuant to article 14 of the latter. See Montreal Protocol, *supra* note 18, art. 14, at 1559.

¹⁴¹ See Basel Convention, *supra* note 31, art. 20, at 675.

The first blow to the World Court's potential as a forum for environmental dispute settlement had already been dealt in 1970 by Canada's reservation with regard to the Arctic Waters Pollution Prevention Act¹⁴²—later reassurances by judges and friends of the court notwithstanding.¹⁴³ Today, multilateral environmental agreements that can be enforced by compulsory international adjudication are the exception rather than the rule.¹⁴⁴ The imposition of sanctions for non-compliance thus requires different (non-hierarchic) approaches, again involving reciprocity. Further complicating matters, mutual obligations under multilateral agreements are more difficult to individualize than they are in bilateral disputes.¹⁴⁵ Despite these complications, environmental regimes have "learned" to use alternative methods and institutions to ensure implementation of agreed-upon standards, as illustrated by the following examples.

A. Alternatives to Supranational Regulation

The conspicuous absence of international regulatory institutions for environmental governance in no way prevented the proliferation of transnational regimes using a variety of regulatory mechanisms: environmental permits, environmental impact statements, environmental labels, and so forth. Experience shows that regulatory functions of this kind can very well be left to existing national bureaucracies. Usually, no new international bureaucratic superstructure is needed, as long as there is a workable measure of compatibility

¹⁴² Canadian Declaration Concerning the Compulsory Jurisdiction of the International Court of Justice, Apr. 7, 1970, 9 I.L.M. 598. This declaration excluded from the compulsory jurisdiction of the International Court of Justice "disputes arising out of or concerning jurisdiction or rights claimed or exercised by Canada in respect of the conservation, management or exploitation of the living resources of the sea, or in respect of the prevention or control of pollution or contamination of the marine environment in marine areas adjacent to the coast of Canada." *Id.* at 599. The declaration was withdrawn on September 10, 1985. Acceptance of I.C.J. Compulsory Jurisdiction with Regard to Disputes Arising out of Jurisdictional Claims, Sept. 10, 1985, 24 I.L.M. 1729.

¹⁴³ See, e.g., Jessup, *Do New Problems Need New Courts?*, 65 PROC. AM. SOC'Y INT'L L. 261 (1971) (proposal for special environmental chambers of the court); Lachs, *Some Reflections on the Settlement of International Disputes*, 68 PROC. AM. SOC'Y INT'L L. 323 (1974); Singh, *The Environmental Law of War and the Future of Mankind*, in THE FUTURE OF THE INTERNATIONAL LAW OF THE ENVIRONMENT 419, 422 (R. Dupuy ed. 1985) (proposing a new "world tribunal to enforce proper regulation in environmental matters").

¹⁴⁴ See Kiss, *Le règlement des différends dans les conventions multilatérales relatives à la protection de l'environnement*, in THE SETTLEMENT OF DISPUTES ON THE NEW NATURAL RESOURCES 119 (R.J. Dupuy ed. 1983) (statistical survey of dispute settlement clauses in multilateral environmental agreements).

¹⁴⁵ See Sachariew, *State Responsibility for Multilateral Treaty Violations: Identifying the Injured State' and Its Legal Status*, 35 NETHERLANDS INT'L L. REV. 273 (1988).

and mutual recognition of procedures, supported in practice by what political scientists describe as "epistemic"¹⁴⁶ cooperation between specialists across national boundaries.

1. Mutual Recognition

Rather than conferring licensing powers on an international body, many environmental agreements provide for the reciprocal recognition of licences and permits by competent national authorities.

The only conditions are that these permits are properly authenticated and that certain agreed-upon standards are observed in granting them. Uniform sanitary and vaccination certificates have thus been issued over the past forty years by national medical and veterinary services under the WHO International Health Regulations,¹⁴⁷ just as phytosanitary certificates for exports and re-exports have been under the 1951 International Plant Protection Convention.¹⁴⁸ National maritime and inland water authorities issue "international oil pollution prevention certificates" for ships pursuant to the 1973/1978 Convention for the Prevention of Pollution from Ships (MARPOL).¹⁴⁹ They also issue waste disposal permits for substances listed on the "grey lists" of at least ten global and regional agreements aimed at preventing marine and inland water pollution, starting with the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter.¹⁵⁰ Under the 1989 Basel Convention,¹⁵¹ waste-export notifications and authorizations will also be issued exclusively by national authorities.

¹⁴⁶ See *infra* note 220 and sources cited therein.

¹⁴⁷ See *supra* note 113 and sources cited therein.

¹⁴⁸ Dec. 6, 1951, 150 U.N.T.S. 68. See also Plant Protection Agreement for South East Asia and the Pacific Region, Dec. 6, 1951, 247 U.N.T.S. 400; Dobbert, *supra* note 116, at 217-21.

¹⁴⁹ International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, art. 5, paras. 1-4, 12 I.L.M. 1319, 1322-23, Feb. 16, 1978, 17 I.L.M. 546. See generally R. M'GONIGLE & M. ZACHER, POLLUTION, POLITICS, AND INTERNATIONAL LAW: TANKERS AT SEA (1979); G. TIMAGENIS, INTERNATIONAL CONTROL OF MARINE POLLUTION (1980). For the revised model certificate, see INTERNATIONAL MARITIME ORGANIZATION, REGULATIONS FOR THE PREVENTION OF POLLUTION BY OIL 119 (1982).

¹⁵⁰ Opened for signature Dec. 29, 1972, 26 U.S.T. 2403, T.I.A.S. No. 8165, 1046 U.N.T.S. 120, at 141. See Convention on the Baltic, *supra* note 43; Convention on the Mediterranean, *supra* note 44; Convention on the Protection of the Rhine Against Chemical Pollution, Dec. 3, 1976, 16 I.L.M. 242 (1977); EEC, Directive 76/464 on Pollution Caused by Certain Dangerous Substances Discharged into the Aquatic Environment of the Community, 19 O.J. EUR. COMM. (No. L 129/23) (1976); EEC, Directive 80/68 on the Protection of Groundwater Against Pollution Caused by Dangerous Substances, 23 O.J. EUR. COMM. (No. L 20/43) (1980).

¹⁵¹ See Basel Convention, *supra* note 31.

In the chemical industry, international trade depends largely on reciprocal recognition schemes. For example, under the WHO's Certification Scheme on the Quality of Pharmaceutical Products Moving in International Commerce¹⁵²—introduced in 1975 and now applied by 125 countries—the exporting state's health authority is required to certify upon request whether the manufacturer has been found on inspection to comply with defined standards of practice in the manufacture and quality control of drugs. Some countries have gone further toward harmonizing their reference procedures. Examples include the chemical test guidelines and principles of good laboratory practice laid down by the Organization for Economic Cooperation and Development (OECD);¹⁵³ the 1970 Convention for the Mutual Recognition of Inspections in Respect of the Manufacture of Pharmaceutical Products,¹⁵⁴ adopted within the framework of the European Free Trade Association (EFTA) in Geneva but also followed by several non-EFTA countries; and the 1979 "sixth amendment" to the European Community's Directive on the Approximation of Laws, Regulations and Administrative Provisions Relating to Classification, Packaging and Labelling of Dangerous Substances,¹⁵⁵ also followed by a number of countries outside the EEC. The basis of these

¹⁵² W.H.A. Res. 28.65 (1975), 2 World Health Organization 1983, HANDBOOK OF RESOLUTIONS AND DECISIONS OF THE WORLD HEALTH ASSEMBLY AND EXECUTIVE BOARD 114 (5th ed. 1983). See D. KAY, THE INTERNATIONAL REGULATION OF PHARMACEUTICAL DRUGS, (American Society of International Law: Studies in Transnational Legal Policy No. 14 1976); and D. JAYASURIYA, REGULATION OF PHARMACEUTICALS IN DEVELOPING COUNTRIES 105-09 (1985). See also Schoepe, *International Regulation of Pharmaceuticals: A WHO International Code of Conduct for the Marketing of Pharmaceuticals?*, SYRACUSE J. INT'L L. & COM. 121, 127 (1984).

¹⁵³ Parts of the OECD guidance documents in this field were subsequently transformed into regulatory requirements in the European Community. See, e.g., EEC, Council Directive 88/320 on the Inspection and Verification of Good Laboratory Practice (GLP), 31 O.J. EUR. COMM. (No. L 145/35) (1988) amended by Directive 90/18, 33 O.J. EUR. COMM. (No. L 11/37) (1990).

¹⁵⁴ Oct. 8, 1970, 956 U.N.T.S. 3. See also EFTA SCHEME FOR THE MUTUAL RECOGNITION OF EVALUATION REPORTS ON PHARMACEUTICAL PRODUCTS (1979) (a voluntary understanding to facilitate the registration of foreign pharmaceuticals, signed by Austria, Finland, Norway, Sweden, and Switzerland).

¹⁵⁵ Directive 79/831/EEC, 22 O.J. EUR. COMM. (No. L 259) (1979) (amending for the sixth time Directive 67/548/EEC, 10 O.J. EUR. COMM. (No. L 196) (1967). See Wyman, *Control of Toxic Substances: The Attempt to Harmonize the Notification Requirements of the U.S. Toxic Substances Control Act and the European Community Sixth Amendment*, 20 VA. J. INT'L L. 417 (1980). For a list of other relevant EEC Directives (on agricultural chemicals, food additives and contaminants, consumer products, etc.), see WORLD HEALTH ORGANIZATION, HEALTH ASPECTS OF CHEMICAL SAFETY: LEGISLATIVE AND ADMINISTRATIVE PROCEDURES FOR THE CONTROL OF CHEMICALS 243-54 (1984); S. JOHNSON & G. CORCELLE, THE ENVIRONMENTAL POLICY OF THE EUROPEAN COMMUNITIES (1989).

regimes invariably remains one of reciprocal acceptance of national certification.¹⁵⁶

Similarly, the 1973 CITES¹⁵⁷ established worldwide trade controls based on mandatory permits and certificates covering the export, import, and re-export of plant and animal species or products listed in the Convention appendices. Yet, these permits are not issued by an international institution. Instead, the entire CITES regime relies on the mutual recognition and verification of national permits, issued by designated authorities in each of the 109 Member States. The international Secretariat merely provides coordination and "switchboard" services.

The CITES approach has, of course, numerous historical antecedents in international relations—from seaworthiness and airworthiness certificates for ships and aircraft, to the classification and labelling of alcoholic beverages. The incentive for governments to participate in any such regime (and the primary sanction of the regime) is its reciprocity, and the practical economic advantages this offers to the participating state, especially where compliance facilitates international communications or the export of certain products.¹⁵⁸

An example is the licensing of imported cars in Europe under the 1958 Geneva Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts.¹⁵⁹ Under this regime, authorizations for marketing new cars are based on "type-approval" of vehicle models, which in turn depends on, among other things, certified compliance with uniform technical criteria for engine emissions. Even though these emission standards are harmonized internationally and periodically updated by the Inland Transport Committee of the UN Economic Commission for Europe (ECE)—again, under a

¹⁵⁶ See generally D. LEIVE, *supra* note 113, at 575. Leive points out that article 22 of the WHO international health regulations, which actually provides for international certification upon request, was never applied, and that national certification continues to be more acceptable in practice. *Id.* at 592.

¹⁵⁷ See CITES, *supra* note 26.

¹⁵⁸ See D. LEIVE, *supra* note 113, at 574.

¹⁵⁹ Mar. 20, 1958, 335 U.N.T.S. 211 (as amended and supplemented by technical regulations through 1990). See, e.g., *id.*, Reg. 15 ("uniform provisions concerning the approval of vehicles equipped with a positive-ignition engine or with a compression-ignition engine with regard to the emission of gaseous pollutants by the engine"); Mar. 20, 1958, 740 U.N.T.S. 364 (to be replaced in 1990 by consolidated Regulation No. 83). On the relationship with concurrent EEC regulations in this field, see P. ROQUEPLO, *PLUIES ACIDES: MENACES POUR L'EUROPE* 297-307 (1988).

"simplified" procedure of delegated lawmaking without ratification, requiring approval by only two of the twenty-two Member States to bring a technical regulation or amendment into force¹⁶⁰—vehicles are licensed by designated national agencies, not by an international body. A license issued by one agency is officially recognized in all other participating countries, which makes the system particularly attractive to car manufacturers as a shortcut to foreign markets. (Indeed, the Japanese government maintains permanent observer status in the ECE Working Party concerned.) At the same time, the ECE regional standards so applied are increasingly becoming models for national licensing in other countries outside of Europe.¹⁶¹ De facto, therefore, the geographical scope of the regime is expanding well beyond the treaty's membership.

2. Model Diffusion

Harmonization of environmental standards also may occur informally as foreign regulatory models are adopted voluntarily. Many developing countries today admit imported chemical products without national evaluation if the product was duly licensed in its country of origin—thereby relying on the presumed effectiveness of foreign controls. On the other hand, several European countries unabashedly borrow United States federal or California state standards to upgrade their national legislation on automobile emissions.¹⁶²

¹⁶⁰ 335 U.N.T.S at 214. Article 1(5) of the 1958 Agreement provides that, after deposit with the UN Secretariat by at least two Contracting Parties and subsequent communication by the UN to all parties, a new or amended text "shall enter into force as a Regulation annexed to this Agreement for all Contracting Parties which have informed the Secretary-General of their acceptance of it within three months from the date of the Secretary-General's communication." *Id.*

¹⁶¹ Canada, Japan, and the United States participate regularly in the UN/ECE Working Party on the Construction of Vehicles (WP29), which is in charge of drafting the technical regulations and amendments to the 1958 Agreement. Australia also keeps liaison with the Working Party and reports on national regulations aligned on the ECE rules. See *International Harmonization of Motor Vehicle Regulation*, U.N. Docs. TRANS/SC1/WP29/R.454, Add.1 (1987) (comments by Japan and the United States).

¹⁶² See *Transboundary Air Pollution*, *supra* note 65 (reports by Austria, Norway, Sweden, and Switzerland). In a Declaration on Air Pollution by Motor Vehicles, signed at Stockholm on July 5, 1985, the environment ministers of Austria, Canada, Denmark, Finland, Liechtenstein, Norway, Sweden, and Switzerland agreed to cooperate toward the introduction of national engine emission standards following 1983 United States federal standards. The "Stockholm Group" has since continued to meet informally at the technical level (with the additional participation of the Federal Republic of Germany and the Netherlands), and played a significant role in the negotiation of tighter standards under the 1958 Agreement in the ECE Inland Transport Committee. See Sand, *Air Pollution in Europe: International Policy Responses*, ENV'T, Dec. 1987, at 19.



UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS

done at Geneva on 20 March 1958

Regulation No. 49* Revision 1
(entry into force: 14 May 1990)

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF COMPRESSION IGNITION (C.I.) ENGINES AND VEHICLES EQUIPPED WITH C.I. ENGINES WITH REGARD TO THE EMISSIONS OF GASEOUS POLLUTANTS BY THE ENGINE

1. SCOPE

This Regulation applies to the emission of gaseous pollutants from C.I. engines used for driving motor vehicles having a design speed exceeding 25 km/h of categories M₁ having a total mass exceeding 3.5 tonnes, M₂, M₃, N₁, N₂ and N₃.**

5.2 Specifications concerning the emission of pollutants

The emission of pollutants by the engine submitted for testing shall be measured by the method described in annex 4. Other methods may be approved if it is found that they yield equivalent results. The emissions of the carbon monoxide, the emissions of the hydrocarbons and the emissions of the oxides of nitrogen contained shall not exceed the amounts shown in the table below:

Mass of carbon monoxide (CO) grammes per kWh	Mass of hydrocarbons (HC) grammes per kWh	Mass of oxides of nitrogen (NO _x) grammes per kWh
11.2	2.4	14.4

*UN/ECE Regulation No. 49 on emissions from diesel engines is currently applied in the following countries: *Belgium; Czechoslovakia; France; Finland, Germany (East and West); Hungary; Italy; Luxembourg; Netherlands; Romania; USSR; United Kingdom; and Yugoslavia. Australia and New Zealand apply UN/ECE Regulations No. 49 unilaterally.* Pursuant to EEC Directives 88/76, 88/77 and 88/436, provisions corresponding to Revision 1 of UN/ECE Regulation No. 49 will become mandatory in all 12 member countries of the European Community in October 1990. *Austria and Switzerland have announced stricter national emission standards for diesel engines; whereas Norway and Sweden will align their requirements on 1990 U.S. standards.*

**I.e., diesel-fuelled passenger cars, trucks and buses.

The international transfer of innovative norms and institutions, a transcultural process described as *mimesis* by Arnold Toynbee,¹⁶³ follows patterns of geographical diffusion quite similar to the spread of technological innovations.¹⁶⁴ Some social geographers have even drawn parallels with the spread of contagious diseases¹⁶⁵—vindicating a metaphor already used by Goethe, in *Faust*:

All rights and laws are still transmitted
like an eternal sickness of the race,
from generation unto generation fitted
and shifted round from place to place.¹⁶⁶

One legislative innovation that has spread widely is the “environmental impact assessment” (EIA) procedure first introduced by the United States’ 1969 National Environmental Policy Act.¹⁶⁷ While attempts to internationalize the procedure through a treaty—advocated by United States Senator Claiborne Pell since 1978¹⁶⁸—were manifestly unsuccessful and never progressed beyond a “soft law” declaration in the UNEP,¹⁶⁹ the underlying concept of the legislation rapidly and quite informally became a model for at least thirty countries worldwide. EIA now is a commonplace legal term not only

¹⁶³ J. TOYNBEE, 12 A STUDY OF HISTORY: RECONSIDERATIONS 343 (1961) (“the reception and adoption of elements of culture that have been created elsewhere and have reached the recipient by a process of diffusion”).

¹⁶⁴ See E. ROGERS, DIFFUSION OF INNOVATIONS (1962); T. HAGERSTRAND, INNOVATION DIFFUSION AS A SPATIAL PROCESS (1967).

¹⁶⁵ P. GOULD, SPATIAL DIFFUSION 55–58 (Association of American Geographers: Resource Paper No. 4) (1969).

¹⁶⁶ J.W. GOETHE, FAUST, pt. I, scene 4, at 79 (B. Taylor trans. 1870) (1932).

¹⁶⁷ National Environmental Policy Act of 1969, Pub. L. 91-190, 83 Stat. 852 (1970). For a recent critical review of the Act by its principal draftsperson, see Caldwell, *A Constitutional Law for the Environment: 20 Years with NEPA Indicates the Need*, ENV’T, Dec. 1989, at 6, 7–11, 25–28.

¹⁶⁸ See *International Environmental Assessment*, S. Res. 49, 95th Cong., 2d Sess. (1978); Mansfield, *Shaping Environmental Assessment for Use in International Activities*, in ENVIRONMENTAL IMPACT ASSESSMENT: PROCEEDINGS OF A SEMINAR OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE 319 (1981). See also Goldie, *A General View of International Environmental Law: A Survey of Capabilities, Trends and Limits*, in THE PROTECTION OF THE ENVIRONMENT AND INT'L LAW 25, 124–40 (A.C. Kiss ed. 1975).

¹⁶⁹ UNEP Governing Council Decision 14/25, *Goals and Principles of Environmental Impact Assessment*, U.N. Doc. UNEP/GC.14/17/Annex III (1987); see also G.A. Res. 184, 42 U.N. GAOR Supp. (No. 49) para. 140, U.N. Doc A/RES/42/184 (1987); Bonine, *Environmental Impact Assessment: Principles Developed*, 17 ENVTL. POL’Y & L. 5, 6–9 (1987). The UNEP Secretariat did, however, promote the use of EIA in multilateral development funding, in regional seas agreements, and generally in developing countries. See P. SAND, *supra* note 46; see also Y. AHMAD & G. SAMMY, *GUIDELINES TO ENVIRONMENTAL IMPACT ASSESSMENT IN DEVELOPING COUNTRIES* (1985); J. MAYDA, *MANUAL ON ENVIRONMENTAL LEGISLATION (UNEP/IALS 1979)*; UNEP REGIONAL OFFICE FOR ASIA AND THE PACIFIC, *ENVIRONMENTAL IMPACT ASSESSMENT: BASIC PROCEDURES FOR DEVELOPING COUNTRIES* (1988).

in English-speaking countries from Australia to Zambia,¹⁷⁰ but also as *declaración de efecto ambiental* in the 1974 Colombian Code of Renewable Natural Resources and Environment Protection,¹⁷¹ as *evaluación de impacto ambiental* in Spain's 1986 Royal Decree on EIA,¹⁷² as *étude d'impact sur l'environnement* in the 1976 French Nature Conservation Act¹⁷³ (followed by similar provisions in other French-speaking countries, such as the 1983 Algerian Act on Environment Protection),¹⁷⁴ as *Umweltverträglichkeitsprüfung* (UVP) in the 1990 West German EIA Act¹⁷⁵ (based on a 1985 European Community Directive on the Assessment of the Effects of Certain Public and Private Projects on the Environment),¹⁷⁶ and in recent (1988) East German legislation.¹⁷⁷ Here again, parallels may be drawn with worldwide diffusion of other institutional models—notably, the "TVA syndrome" in river basin management.¹⁷⁸

Another widely diffused model of this kind is the concept of a pollution tax or financial charge pro-rated to the volume of pollutant emissions. Originally developed (since 1904) as "effluent fees" for regional pollution control by water management associations in the Ruhr River Basin,¹⁷⁹ emission charges have since been introduced

¹⁷⁰ Australia enacted its Environment Protection Act (Impact of Proposals) on Dec. 17, 1974. Austl. Acts No. 164 (as amended by Austl. Acts No. 12 (1987); Zambia amended its 1970 Natural Resources Conservation Act in 1981 to introduce impact assessments for major water development projects. *Zambia Government Gazette*, No. 53, suppl. no. 123, at 673.

¹⁷¹ Decree No. 2811, arts. 27, 28, Dec. 18, 1974, 111 DIARIO OFICIAL (no. 34,243) (1975). See Cano, *Comprehensive Environmental Legislation: A Summary Review of Colombia's Environmental Code*, 1 ENVTL. POL'Y & L. 177-79 (1976).

¹⁷² Royal Decree No. 1302, June 28, 1986, 155 BOLETIN OFICIAL at 2373 (1986) (translated by FAO in 36 FOOD & AGRIC. LEGIS. 173 (1987)).

¹⁷³ Act No. 76-629, July 10, 1976, 162 JOURNAL OFFICIEL at 4203 (1976) (implemented by Decree No. 77-1141, Oct. 12, 1977).

¹⁷⁴ Act No. 83-03, art. 130, Feb. 5, 1983, 6 JOURNAL OFFICIEL at 250 (1983) (translated by WHO in 35 INT'L DIG. HEALTH LEGIS. 176 (1984)).

¹⁷⁵ Federal Act on Environmental Impact Assessment (UVPG), 1990 BGBl I 205 (W. Ger.); see Storm, *Legislation on Environmental Impact Assessment in the Federal Republic of Germany*, U.P.R. L. REV. (forthcoming, 1990).

¹⁷⁶ EEC Council Directive 85/337 on the Assessment of the Effects of Certain Public and Private Projects on the Environment, 28 O.J. EUR. COMM. (No. L 175) 40 (1985); see Grant, *Implementation of the European Community Directive on Environmental Impact Assessment*, 4 CONN. J. INT'L L. 463, 464-77 (1989).

¹⁷⁷ Investment Decree of Nov. 30, 1988, art. 4(3), GBl.I No. 26 at 289, Dec. 16, 1988. On earlier environmental controls in the former German Democratic Republic (GDR) regional investment planning, see Sand, *The Socialist Response: Environmental Protection Law in the German Democratic Republic*, 3 ECOLOGY L. Q. 451, 470-71 (1973).

¹⁷⁸ See A. HIRSCHMAN, *DEVELOPMENT PROJECTS OBSERVED* 21-28 (1967) (referring to the fashion of presenting new river valley development schemes in Brazil, Mexico, Colombia, Iran, or India as true copies of the Tennessee Valley Authority ("pseudo-imitation")). See also Dore, *The Prestige Factor in International Affairs*, 51 INT'L AFF. 190 (1975).

¹⁷⁹ See A. KNEESE & B. BOWER, *MANAGING WATER QUALITY: ECONOMICS, TECHNOLOGY,*

in many other regions and countries and applied to a wide range of other environmental issues. The basic idea is to levy a disincentive charge on specified economic activities, depending on how much environmental harm they do, and to earmark the proceeds from the charge for specific counter-measures.¹⁸⁰ Effluent charges for water pollution are now part of national law in Germany and elsewhere in Western Europe (the Netherlands, France, Italy)¹⁸¹ as well as in Eastern Europe (Czechoslovakia, Hungary, Poland).¹⁸² They have been proposed for adoption in the United States and the USSR.¹⁸³ Landing charges for aircraft noise, pro-rated according to engine type or aircraft weight, are levied in Japan and at several West European airports.¹⁸⁴ Since March 1989, all domestic air traffic in Sweden is subject to a pro-rated charge on aircraft engine emissions of nitrogen oxides and hydrocarbons.¹⁸⁵

Surprisingly, emission charges seem to function both in market economies and in centrally planned economies. The (East) German Democratic Republic first introduced a "dust and gaseous emissions fee" on industrial enterprises emitting air pollutants in excess of specified levels, starting experimentally in two of the most polluted districts in 1969 and extending the system country-wide by legislation in 1973.¹⁸⁶ Hungary and Poland followed.¹⁸⁷ In 1985, France

INSTITUTIONS 237-53, 257-62 (1968); R. JOHNSON & G. BROWN, CLEANING UP EUROPE'S WATERS: ECONOMICS, MANAGEMENT AND POLICIES 113-32 (1976).

¹⁸⁰ See Sand, *Pollution Sanctions: New Alternatives to Civil Liability*, 1973 J. BUS. L. 147-54; F. ANDERSON, A. KNEESE, P. REED, R. STEVENSON & S. TAYLOR, ENVIRONMENTAL IMPROVEMENT THROUGH ECONOMIC INCENTIVES (1977).

¹⁸¹ For a survey of current national practice in OECD Member Countries, see J. OPSCHOOR & H. VOS, ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL PROTECTION (1989); see also Bongaerts & Kraemer, *Permits and Effluent Charges in the Water Pollution Control Policies of France, West Germany and the Netherlands*, 12 ENVTL. MONITORING & ASSESSMENT 127 (1989).

¹⁸² See J. SALZWEDEL, STUDIEN ZUR ERHEBUNG VON ABWASSERGEBUEHREN [Studies on Effluent Charges for Waste Water] 23-33 (1972); Sand, *Environmental and Water Law in East Germany: National and International Aspects*, in 12 ENVIRONMENTAL LAW: INTERNATIONAL AND COMPARATIVE ASPECTS 77-84 (J. Nowak ed. 1976).

¹⁸³ For the United States, see Kneese & Bower *supra* note 179, at 143-64, 315-18; ENVIRONMENTAL LAW INSTITUTE, EFFLUENT CHARGES ON AIR AND WATER POLLUTION (Monograph No. 1) (1973). New USSR legislation on an environmental fund to be financed from emission charges is reported in TRANSBOUNDARY AIR POLLUTION, *supra* note 65, at 10.

¹⁸⁴ See J. OPSCHOOR & H. VOS, *supra* note 181, at 47-49; OECD, POLLUTION CHARGES IN PRACTICE 92-97 (1980).

¹⁸⁵ Act on Environmental Tax for Domestic Air Traffic, Dec. 15, 1988, Svensk Författnings-Samling at 1566.

¹⁸⁶ See Sand, *supra* note 177, at 477-78; Fifth Implementing of the National Environment Act (Air Quality Decree) of Feb. 12, 1987, art. 15, GBl.I No. 7 (1987).

¹⁸⁷ See UN/ECE, NATIONAL STRATEGIES AND POLICIES FOR AIR POLLUTION ABATEMENT, 16 U.N. Sales No. E.87.II.E.29 (1987).

enacted a "para-fiscal air pollution tax" on all large fossil fuel combustion sources emitting more than 2500 metric tons of sulphur dioxide per year (some 480 plants representing about two-thirds of total sulphur emissions in the country), taxed at 130 francs per metric ton sulphur dioxide (about two cents per kilogram), with the proceeds going to anti-pollution investments in the industries concerned.¹⁸⁸ From 1990 onwards, the French tax will be raised to 150 francs per ton and extended to industrial emissions of nitrogen oxides (NO_x). Finland enacted a whole package of "environmental taxes" on fossil fuels as part of its 1990 budget legislation,¹⁸⁹ and similar measures—including a new charge on carbon dioxide (CO₂) emissions at the rate of twenty-five öre (about four cents) per kilogram CO₂—are under discussion in Sweden.¹⁹⁰ This impressive progress aside, none of the existing emission charges today are considered steep enough to achieve the full "polluter-pays" effect postulated in welfare economics. None will, in other words, internalize all social costs generated by a pollution source.¹⁹¹ Rather, their avowed function is to raise para-fiscal revenue through environmentally rational penalties.¹⁹²

A more recent example of transnational diffusion is the "environmental label" for consumer products first introduced in the Federal Republic of Germany in 1978.¹⁹³ There, an expert jury under the auspices of the Federal Environment Ministry awards to consumer products an official environmental quality label, based on the international logo of the UNEP and popularly known as the "blue angel"¹⁹⁴

¹⁸⁸ Decree No. 85-582, June 7, 1985, J.O. 6403 (1985).

¹⁸⁹ Amendments of the fuel tax (prorated according to carbon content), the oil-spill protection charge, and the waste-oil charge, adopted on September 22, 1989, are in force from January 1 to December 31, 1990. Together with other environmental taxes and charges in the 1990 budget, they will amount to about 1 billion Finnish marks in revenues, representing slightly under one percent of the government's tax accrual. On the other hand, exemptions from turnover tax for environmental protection investments for this fiscal year will reduce state revenues by an estimated 400–500 million fin-marks. Ministry of the Environment, press release 89/uam3071/dt/ub/br/III (Sept. 9, 1989).

¹⁹⁰ MINISTRY OF ENVIRONMENT AND ENERGY, EKONOMiska STYRMEDEL I MILJOPOLITIKEN: ENERGI OCH TRAFIK [Economic Instruments in Environmental Policy: Energy and Traffic] 23–29 (English summary pt. I); see Kessler, *Sweden Proposes Charges on Emission of Pollutants to Finance Environmentally Sound Technology*, 18 AMBIO 462 (1989). For criticism of the proposal, see 13 INT'L ENV'T REP. (BNA) 7 (Jan. 10, 1990).

¹⁹¹ See Seigneur, *Economic Aspects of International Air Pollution Control Policies*, 29 INT'L J. ENVTL. STUD. 297, 298–99 (1987) (sources cited therein).

¹⁹² J. OPSCHOOR & H. VOS, *supra* note 181, at 36.

¹⁹³ UMWELTBUNDESAMT [Federal Environmental Agency], INFORMATION SHEET ON THE ENVIRONMENTAL LABEL (1989); J. Staupe, *The German Environmental Label* (August 30, 1989) (paper prepared on behalf of the Federal Environmental Agency).

¹⁹⁴ The original *Blue Angel* was a vaudeville bar in a novel by HEINRICH MANN, PROFESSOR UNRAT (1905), and the title of a famous Marlene Dietrich movie (1930).

(see Figure 5). Once commercial users pay a license fee to the non-governmental National Institute for Quality Assurance and Certification (RAL), they can use the label in advertising and packaging on products ranging from low-emission oil combustion units to "environmentally benign" (recycled) toilet paper.¹⁹⁵ The scheme turned

Figure 5: Environment Product Labels.



Blue Angel West Germany, 1978



EcoMark Japan, 1989

EcoLogo Canada, 1989



Environment Mark Nordic Council, 1989



Source: Sand, *supra* note 33, at 256.

¹⁹⁵ Detailed environmental specifications for sixty-odd eligible product groups are adopted

out to be highly popular and successful—lawsuits by disgruntled competitors notwithstanding¹⁹⁶—and currently some 3500 products on the market bear the blue angel mark.¹⁹⁷ Similar systems of product labelling and licensing, partly based on the West German experience, were introduced in 1989 both in Canada (EcoLogo)¹⁹⁸ and in Japan (EcoMark).¹⁹⁹ In November 1989, the Nordic Council of Ministers adopted a joint environmental label for consumer products (“miljömärkt”) to be used in all Scandinavian countries, based on national certification following along common guidelines.²⁰⁰

In each of these schemes, the private sector participates through representatives of non-governmental industrial, environmental, and consumer protection associations. In some, non-governmental institutions are empowered to do the licensing. In the Federal Republic of Germany, most anti-pollution equipment for motor vehicles and stationary emission sources is certified under contract by regional engineering societies known as TÜV (*Technische Überwachungs-Vereine*, or technical inspection associations).²⁰¹ Similar non-governmental inspection services for motor vehicles exist in Belgium and Sweden, which (jointly with governmental inspectorates from other

and periodically updated by the jury. See RAL, UMWELTZEICHEN: PRODUKTANFORDERUNGEN (1989).

¹⁹⁶ See the most recent decision rendered by the Federal Court of Justice, VGU Cologne Fair Trade Ass'n v. Kaiser's Drugstore AG, 42 NJW 711-14 (Oct. 20, 1988); see also the critical review of earlier judgments by Wimmer, *Ein Blauer Engel mit Rechtlichen Macken*, 43 BETRIEBS-BERATER 565-71 (1989).

¹⁹⁷ There were 3273 products listed as of December 31, 1989, with an annual increment of 400 expected for 1990. See *Federal Ministry of Environment, Nature Conservation and Radiation Protection*, 2 UMWELT 62 (1990) (information bulletin).

¹⁹⁸ Under the Environmental Choice Program, an advisory board established pursuant to the 1988 Canadian Environmental Protection Act develops and updates environmental guidelines for selected product categories which, after public review, are promulgated in the Canada Gazette and publicized in the EcoLogo Environmental Choice Newsletter. As of December 1989, 14 product category guidelines had been issued. Testing and certification of products is carried out under contract by the Canadian Standards Association, which then concludes licensing agreements (on an annual fee basis) with individual user companies.

¹⁹⁹ Starting in February 1989, an EcoMark Secretariat established within the Japanese Environment Agency began issuing environmental criteria for selected commodities and concluding licensing contracts with users for two-year periods. See 17 JAPAN ENVIRONMENT SUMMARY, No. 3, at 1-2 (1989).

²⁰⁰ Nordic Council of Ministers, *Guidelines for the Introduction of a Voluntary Nordic Environmental Labelling Scheme*, 24.10.89/SP. Product selection criteria are to be laid down by a coordinating board (with one or two representatives from each Member State) under the Council's Administrative Committee for Consumer Matters. *Id.*

²⁰¹ Some legal commentators refer to this practice as “public administration by the private sector.” U. STEINER, OEFFENTLICHE VERWALTUNG DURCH PRIVATE (1975). The largest of the associations, TÜV Rhineland (Cologne), is increasingly involved in inspection contracts abroad.

European countries) participate in the International Motor Vehicle Inspection Committee. In Norway, technical and environmental certification of offshore mining platforms is carried out by a private company (*Det Norske Veritas*), following the century-old practice of classifying seaworthy ships, initiated by insurance companies such as Lloyd's.²⁰² The Geneva-based *Société Générale de Surveillance* (SGS), through its various subsidiaries and affiliates in 140 countries, also provides inspection services for environmental quality certification under commercial contracts.²⁰³

Wider diffusion of these institutional models is bound to raise transnational problems. Already more than ten percent of the current environmental product labels in the Federal Republic of Germany are held by foreign firms (including fourteen from the Netherlands, eleven from Austria, thirty-three from ten other West European countries, plus some Japanese car manufacturers and American chemical companies)²⁰⁴—and the trend is rising in anticipation of the free-trade regime of the 1992 European Common Market. Conversely, West German exports carrying the “blue angel” are reportedly gaining new market shares in the United Kingdom and other countries with environmentally conscious consumers.²⁰⁵ To avoid unfair trade practices, arrangements for mutual recognition of national environmental labels, possibly including harmonized standards and procedures of product selection and identification, will become necessary. For instance, since the West German jury already allows the applicant’s home state (*Länder*) authorities to participate in the proceedings,²⁰⁶ why not open the procedure to competent foreign authorities where applicable?

3. Alert Diffusion

Transnational diffusion of regulatory experience is particularly important in environmental risk management. Some 70,000 chemi-

²⁰² The company’s former ship division was restructured in 1988 as Det Norske Veritas Classification A.S. for a range of classification services internationally, including land-based wind turbines in Denmark and California. DET NORSKE VERITAS, 1988 ANNUAL REPORT 11-18 (1989).

²⁰³ SGS has been “involved as a privileged partner of the United Nations Environment Programme in the preparation of a draft convention dealing with the handling of toxic waste.” SGS, 1988 ANNUAL REPORT 4 (1989). The proximity of SGS headquarters was one of the points stressed by the Swiss government in favor of locating the new UNEP Secretariat for the Basel Convention in Geneva. See Basel Convention, *supra* note 31.

²⁰⁴ See J. Staupe, *supra* note 193, at 15; RAL, *supra* note 195 (product list).

²⁰⁵ See Schoon, *Germans Fill Green Gap in UK Market*, The Independent, June 1, 1989.

²⁰⁶ Wimmer, *supra* note 196, at 566–68 (quoting RAL guidelines for license contracts).

cals are in common use today, with 500 to 1,000 new compounds added every year. While very little is known yet about the toxicity of almost two-thirds of these,²⁰⁷ information is available on national regulatory action concerning chemicals already considered environmentally harmful or hazardous. Following a 1982 General Assembly Resolution,²⁰⁸ the UN Secretariat regularly publishes a "consolidated list" of products whose consumption or sale have been banned, withdrawn, severely restricted, or not approved by governments. The fourth edition (1990) lists some 400 chemicals and 300 pharmaceuticals.

Following regional initiatives by the Organization for Economic Cooperation and Development, and inspired in part by earlier United States federal legislation,²⁰⁹ the Governing Council of the UNEP in 1984 adopted a "provisional notification scheme" for banned or severely restricted chemicals, requiring countries to exchange standard warnings when exporting any of these products.²¹⁰ Further elaborated by the 1987 London *Guidelines for the Exchange of Information on Chemicals in International Trade*,²¹¹ the scheme is administered by the UNEP's Geneva-based International Register of Potentially Toxic Chemicals and currently implemented by seventy-five countries. Related provisions are found in the International Code of Conduct on the Distribution and Use of Pesticides adopted by the Food and Agriculture Organization of the United Nations in 1985.²¹² (Both the UNEP and the FAO procedure were amended in 1989 to include the requirement of "prior informed consent," under which participating importing countries will have to give their express approval before hazardous chemicals can be brought in.)²¹³

²⁰⁷ NATIONAL RESEARCH COUNCIL, *TOXICITY TESTING: STRATEGIES TO DETERMINE NEEDS AND PRIORITIES* (1984).

²⁰⁸ *Protection against Products Harmful to Health and the Environment*, G.A. Res. 137, 37 U.N. GAOR Supp. (No. 51) at 112-13, U.N. Doc. A/RES/37/137 (1982).

²⁰⁹ See Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 7 U.S.C. § 1360(d) (1988); Toxic Substances Control Act of 1976 (TSCA), 15 U.S.C. § 2607 (1988); see also Gabbay, *International Ramifications of the Toxic Substances Control Act*, 3 HARV. ENVTL. L. REV. 136, 151 n.100 (1979); Goldberg, *Efforts to Prevent Misuse of Pesticides Exported to Developing Countries: Progressing Beyond Regulation and Notification*, ECOLOGY L.Q. 1025, 1033-35 (1985).

²¹⁰ See *supra* note 103.

²¹¹ U.N. Doc. UNEP/GC/14/27 (1987).

²¹² FAO Res. 10/85, FAO Doc. C85/REP (FAO Conference, 23d Sess.); see FAO, INTERNATIONAL CODE OF CONDUCT ON THE DISTRIBUTION AND USE OF PESTICIDES, art. 9 (information exchange) (1986).

²¹³ See also European Community Council Regulation 88/1734 on EEC Imports and Exports of Certain Dangerous Chemical Products, 31 O.J. EUR. COMM. (No. L 155) (1988).

Information diffusion of this kind serves as a danger signal to importing countries, especially with regard to the fifty to one hundred "red flag" chemicals currently banned by more than ten states. While this process may be tantamount to blacklisting, no international regulatory action is involved because both the consolidated UN list and the UNEP/OECD schemes are based entirely on national regulatory decisions in the countries concerned.²¹⁴

A similar notification procedure debuted under article 5 of the CITES treaty.²¹⁵ Besides the Convention's international "black" and "grey" lists of endangered species (appendices I and II), there is a separate third appendix on which each Member State may list any species or taxa whose export it wishes to ban or control for national reasons. Unlike the listing of species in appendices I and II, which requires international agreement by a two-thirds majority vote, appendix III listings are made by simple unilateral notification to the CITES Secretariat, which in turn communicates it to all other Member States with a request to adjust their trade controls accordingly. Although originally not accorded much weight, recourse to appendix III has increased over the years. By 1989, 249 taxa were listed.²¹⁶ In addition, as practice gradually developed in treaty administration, the CITES Secretariat has begun to notify all parties whenever a Member State announces a national ban on exports or imports—over and above the controls required by the treaty—so as to solicit international enforcement assistance.²¹⁷ While such calls are issued voluntarily—and are not always viewed kindly by other parties, in view of the extra administrative burden involved²¹⁸—they rarely go unheeded, and they are duly included in the enforcement instructions given by most governments to their trade control authorities. Pre-cautionary diffusion of foreign restrictions thus tends to produce the desired result, even though the system is not strictly mandatory.

²¹⁴ Huismans, *Towards a World Black List of Chemicals?*, 6 IRPTC BULLETIN Nos. 2-3 (1984).

²¹⁵ See CITES, *supra* note 26, art. 5, at 248.

²¹⁶ *Thirteenth Annual Report of the Secretariat*, 7 CITES Doc. 7.7 (1989) [hereinafter *Thirteenth Annual Report*]. A French proposal to restrict unilateral appendix III listings to the biennial CITES Conferences was unsuccessful; Resolution 7.15, adopted at the 1989 Lausanne Conference, merely "encourages" declarations concerning appendix III to be made during conference meetings. See 11 TRAFFIC BULL. 25 (1990).

²¹⁷ Notifications regarding national legislation ranked second in numbers among the 93 notifications to parties issued by the CITES Secretariat between January 1988 and June 1989. *Thirteenth Annual Report*, *supra* note 216, at 26.

²¹⁸ The same is true for appendix III listings generally, which frequently provoke formal reservations by importing countries unwilling to accept the additional enforcement burden involved.

4. Epistemic Networks

A crucial factor for the success of environmental agreements is direct permanent contact among the national agencies, groups, and individuals entrusted with implementation. Reference is often made to the role of "technical elites"²¹⁹ or "epistemic communities"²²⁰ to explain consensus-building in the negotiation of international agreements. Experience with environmental regimes suggests that *epistemes*—defined as "a set of shared symbols and references, mutual expectations and a mutual predictability of intentions"²²¹—may be even more important during implementation.

A common feature of mutual recognition schemes is their reliance on a permanent network of national administrators, designated as the official channel for transnational communication and verification. CITES²²² established a network of "management authorities" and "scientific authorities," mostly consisting of wildlife management officers and wildlife biologists. The WHO, UNEP, and OECD schemes to control trade in chemicals²²³ (as well as the future Basel Convention network for hazardous wastes)²²⁴ rely on designated public health officials and government chemists. The ECE motor vehicle certification system²²⁵ works through licensing agencies usually staffed by automotive engineers. Monitoring under the Transboundary Air Pollution Convention²²⁶ is carried out by the EMEP network of stations and laboratories,²²⁷ most of which are part of national meteorological services. Often, the transnational expert communities so established include non-governmental sectors—industry, research institutions, and competent environmental groups. In each case, the common professional background of participants tends to foster a distinct "epistemic" solidarity across frontiers—the old boys' network.

²¹⁹ See Johnston, *Marine Pollution Agreements: Successes and Problems*, in INTERNATIONAL ENVIRONMENTAL DIPLOMACY 199–204 (J. Carroll ed. 1988).

²²⁰ See Ruggie, *International Responses to Technology: Concepts and Trends*, 29 INT'L ORG. 557 (1975); P. Haas, Ozone Alone, No CFCs: Epistemic Communities and the Protection of Stratospheric Ozone (paper submitted to the 1988 Annual Meeting of the American Political Science Association, Washington, D.C., Sept. 1988); Haas, *Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control*, 43 INT'L ORG. 377 (1989).

²²¹ Ruggie, *supra* note 220, borrowing a term from M. FOUCAULT, THE ORDER OF THINGS (1973).

²²² See CITES, *supra* note 26, at 245.

²²³ See *supra* notes 152–53, 210–11 and accompanying text.

²²⁴ See *supra* note 31 and accompanying text.

²²⁵ See *supra* note 159 and accompanying text.

²²⁶ See *supra* note 58 and accompanying text.

²²⁷ See *supra* note 89 and accompanying text.

As a rule, authority for licensing or monitoring decisions of the kind described here (whether they concern imported chemicals, cars, wildlife products, or meteorological data) is delegated to officials at an intermediate technical level. For efficiency's sake, their communications with each other and with the international Secretariats concerned are usually direct, skirting national departmental hierarchies and virtually bypassing diplomatic channels. Since transnational contacts enhance the professional status of participants, they also create strong incentives for continuing and expanding international agreements. Just as mutual confidence and "cognitive convergence"²²⁸ among specialists develops when treaties are prepared and negotiated, technocratic solidarity among those who monitor compliance feeds back into the national evaluation and into the further development of environmental regimes. It also makes cheating in treaty implementation more difficult and can prevent or at least defuse disputes.

B. Alternatives to Intergovernmental Litigation

When evaluating the implementation and effectiveness of international agreements, lawyers tend to focus on judicial or quasi-judicial enforcement, in particular through the principle of state responsibility (now being codified by the UN International Law Commission).²²⁹ The growing literature on state responsibility for environmental harm is usually traced back to the 1941 United States-Canadian *Trail Smelter* arbitration.²³⁰ In practice, though, intergovernmental litigation of the *Trail Smelter* type is rare and plays little or no role in the implementation of multilateral treaties and standards. Indeed, the 1979 Geneva Convention on Long-Range Transboundary Air Pollution expressly excludes the question of state liability for damage.²³¹

²²⁸ Haas, *supra* note 6, at 368.

²²⁹ See McCaffrey, *The Fortieth Session of the International Law Commission*, 83 AM. J. INT'L L. 153 (1989); McCaffrey, *The Forty-First Session of the International Law Commission*, 83 AM. J. INT'L L. 987 (1989); McCaffrey, *The Thirty-Eighth Session of the International Law Commission*, 81 AM. J. INT'L L. 668 (1987); McCaffrey, *The Thirty-Ninth Session of the International Law Commission*, 82 AM. J. INT'L L. 144 (1988); McCaffrey, *The Work of the International Law Commission Relating to Transfrontier Environmental Harm*, 20 N.Y.U. J. INT'L L. & POL. 715 (1988).

²³⁰ *Trail Smelter Case* (United States v. Canada), 3 R. Int'l Arb. Awards 1905 (1935). See Read, *The Trail Smelter Dispute*, 1 CAN. Y.B. INT'L L. 213 (1963); M. Whiteman, 6 DIG. INT'L L. 253 (U.S. State Dep't 1968).

²³¹ Geneva Convention on Air Pollution, *supra* note 58, art. 8(f) n.1, at 1445. "The present Convention does not contain a rule on State liability as to damage." *Id.*

For at least two reasons, intergovernmental liability suits do not seem to be a promising way of enforcing multilateral environmental agreements. First, unlike the bilateral *Trail Smelter* case, which concerned a single point source in Canada causing instant harm to identified victims nearby in the United States, today's multilateral regimes deal increasingly with the long-range (up to several thousand miles) and long-term (up to several generations) effects of multiple pollutants from a variety of sources that are difficult to pin down. Second, the time-cost of the *Trail Smelter* case, which from the first claims in 1926 to the final arbitral award in 1941 took a solid fifteen years, was far higher than most environmental cases today can afford.

In spite of these limitations, international lawyers continue to extrapolate "principles" from this venerable single precedent, like good generals rehearsing the wars of yesteryear. Yet, most trans-national environmental regimes have learned to avoid the adversarial state liability approach; instead, they have used or developed different methods of ensuring compliance with treaty obligations. A number of alternative channels and mechanisms are available for this purpose, including some promising innovative approaches.

1. Local Remedies

The *Trail Smelter* case developed into an international arbitration only because a deadlock arose between local legal rules: while nothing prevented American air pollution victims from bringing a private law suit in Canada, the local Canadian courts in the 1930s would have refused—under an ancient House of Lords rule²³²—to take jurisdiction over suits based on damage to foreign land.²³³ On the other hand, Washington state law did not permit a foreign corporation to acquire smoke easements on Washington land.²³⁴ Had these domestic procedural obstacles been removed by more flexible rules governing foreign parties, the case probably never would have moved to intergovernmental arbitration.

More recent environmental case law demonstrates that numerous local legal remedies are available to defuse transboundary problems and to resolve the apparent conflicts between divergent legal sys-

²³² *Albert v. Fraser Cos., Ltd.*, 1 D.L.R. 39 (1937) (citing *British South Africa Co. v. Companhia de Moçambique*, App. Cas. 602 (1893)).

²³³ See *Willis, Jurisdiction of Courts: Action to Recover Damages for Injury to Foreign Land*, 15 CAN. B. REV. 112, 113–19 (1937).

²³⁴ See *Read*, *supra* note 230, at 223.

tems. For example, in the 1957 case of *Poro v. Lorraine Basin Coalmines*,²³⁵ which involved air pollution from a power plant in France harming residents in West Germany, a German appeals court chose to determine damages "in accordance with the law most favorable to the plaintiff"—in this instance, the French Civil Code.²³⁶ Significantly, the bulk of disputes over transboundary pollution damage along the Rhine River since 1975 were resolved by local remedies, either through national courts or by out-of-court settlements and insurance.²³⁷

Of course, this approach also requires a degree of mutual recognition to be given to foreign decisions—as, for instance, under the Brussels (1968) and Lugano (1988) Conventions on jurisdiction and enforcement of judgments in civil and commercial matters in Europe.²³⁸ There must be certain guarantees for the status of foreign parties in local judicial and administrative proceedings, as under the 1974 Nordic Environmental Protection Convention²³⁹ or the Outline Convention on Transfrontier Cooperation between Territorial Communities or Authorities adopted in 1980 by the Council of Europe.²⁴⁰ The Recommendations on Equal Right of Access and Non-Discrimination in Relation to Transfrontier Pollution, adopted in 1976 and 1977 by the OECD,²⁴¹ played a pilot role in this field; and a draft "convention on environmental impact assessment in a transboundary context," now under preparation in the UN/ECE,²⁴² aims at har-

²³⁵ Judgment of October 22, 1957, Oberlandesgericht (appellate court), Saarbrücken, 11 NJW 752 (1958). For an English summary, see Sand, *The Role of Domestic Procedures in Transnational Environmental Disputes*, in OECD, *LEGAL ASPECTS OF TRANSFRONTIER POLLUTION* 146 (H. van Edig ed. 1977).

²³⁶ See S. McCAFFREY, *PRIVATE REMEDIES FOR TRANSFRONTIER ENVIRONMENTAL DISTURBANCES* (IUCN Environmental Policy and Law Paper No. 8, 1975); Bunge, *Transboundary Cooperation between France and the Federal Republic of Germany*, in *TRANSBOUNDARY AIR POLLUTION: INTERNATIONAL LEGAL ASPECTS OF THE COOPERATION OF STATES* 181 (C. Flinterman, B. Kwiatkowska & J. Lammers eds. 1986).

²³⁷ See Lammers, *supra* note 36, at 451–56; Darrell, *Killing the Rhine: Immoral, but Is It Illegal?*, 29 VA. J. INT'L L. 421 (1989).

²³⁸ European Communities Convention on Jurisdiction and Enforcement of Judgments in Civil and Commercial Matters, Sept. 27, 1968, 8 I.L.M. 229 (1969); Convention on Jurisdiction and Enforcement of Judgments in Civil and Commercial Matters, Sept. 16, 1988, European Communities—European Free Trade Association, 28 I.L.M. 620 (1989).

²³⁹ Feb. 19, 1974, 1092 U.N.T.S. 279–305.

²⁴⁰ For background see THE PROCEEDINGS OF THE TRANSATLANTIC COLLOQUY ON CROSS-BORDER RELATIONS: EUROPEAN AND NORTH AMERICAN PERSPECTIVES (S. Ercmann ed. 1987).

²⁴¹ OECD, *LEGAL ASPECTS OF TRANSFRONTIER POLLUTION*, *supra* note 235, at 11–34.

²⁴² U.N. Doc. ENVWA/R.36 (1990), to be adopted by the Senior Advisers to ECE Governments on Environmental and Water Problems, at their fourth session in Espoo (Finland) in February 1991.

monizing procedures for environmental planning and decisionmaking in border regions. Opening local remedies to foreign parties can go a long way toward de-escalating transboundary disputes to their ordinary neighborhood level.²⁴³

2. Complaints and Custodial Action

As an alternative to legal action against the responsible party, recourse to a non-judicial international institution may provide a first-choice remedy when environmental agreements are infringed. Under the non-compliance procedure developed for the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer (Montreal Protocol),²⁴⁴ complaints by one or more parties will be filed initially with the UNEP Secretariat, which will gather additional information and eventually submit the file to a five-party "implementation committee."²⁴⁵ But even though this proposed procedure was very cautiously defined as non-judicial and non-confrontational, a number of states already cautioned that "any supranational body to review data would be unacceptable,"²⁴⁶ which bodes ill for the chances of such a mechanism.

A much bolder step toward collective compliance control was taken by the 1957 Rome Treaty establishing the EEC.²⁴⁷ Article 155 made the EEC Commission the guardian of the Treaty's implementation, and article 169 empowered it to initiate proceedings against any Member State in case of infringements, sanctioned if necessary by formal action in the European Court of Justice at Luxembourg.²⁴⁸ Over the past ten years, this "custodial" procedure has become one of the most important means of enforcing EEC environmental standards.

²⁴³ See LEIVE, *supra* note 113, vol. II, at 584-88; A. LEVIN, PROTECTING THE HUMAN ENVIRONMENT: PROCEDURES AND PRINCIPLES FOR PREVENTING AND RESOLVING INTERNATIONAL CONTROVERSIES 31-38 (1977); Bilder, *The Settlement of Disputes in the Field of the International Law of the Environment*, in 144 RECUEIL DES COURS: COLLECTED COURSES OF THE HAGUE ACADEMY OF INTERNATIONAL LAW 139, 139-224 (1975); R. FISHER, IMPROVING COMPLIANCE WITH INTERNATIONAL LAW 214-22 (1981).

²⁴⁴ See Montreal Protocol, *supra* note 18 and accompanying text.

²⁴⁵ Report of the Second Meeting of the Parties to the Montreal Protocol, *supra* note 32, Annex III: Non-Compliance Procedure (as adopted in London, June 1990).

²⁴⁶ Report of the First Meeting of the Ad Hoc Working Group of Legal Experts on Non-Compliance with the Montreal Protocol, U.N. Doc. UNEP/OzL.Pro.LG.1/3, para. 14 (1989). See Note, *Non-Compliance with Ozone Agreement*, 19 ENVTL. POL'Y & L. 147-49 (1989).

²⁴⁷ 298 U.N.T.S. 11 (1957).

²⁴⁸ See H. AUDRETSCH, SUPERVISION IN EUROPEAN COMMUNITY LAW (1978); Mertens de Wilmars & Verougstraete, *Proceedings Against Member States for Failure to Fulfill Their Obligations*, 7 COMMON MKT. L. REV. 385-406 (1970).

The EEC infringement proceedings²⁴⁹ comprise three stages: as a first step, the Commission sends "letters of formal notice" to Member States that fail to enact or apply a Community directive, or to report on its enactment or application. After giving the Member State an opportunity to respond, the Commission next can render a "reasoned opinion" confirming the infringement in light of all the facts gathered. If the Member State still does not comply, the Commission then may refer the matter to the European Court of Justice. During 1988, the Commission issued ninety-three letters of formal notice, seventy-one reasoned opinions, and eleven references to the court concerning infringements of EEC environmental directives (some seventy of which were in force at that time).²⁵⁰ A country-by-country comparison of infringement proceedings pending at the end of 1989 is given in Table 2.

What may be the most significant feature of this procedure is mentioned nowhere in the Treaty and evolved only gradually during its implementation. More than half of the infringement proceedings initiated against Member States were based not on the Commission's own monitoring of compliance, but on citizen complaints—from private individuals, associations (such as Greenpeace and Friends of the Earth), or municipalities.²⁵¹ As a result of public information on the complaints procedure and the establishment of a "complaints registry" within the Commission Secretariat in Brussels, the number of environmental complaints rose dramatically—from 10 in 1982 to 190 in 1988 and to 460 in 1989.²⁵² While complaints are usually based on local non-compliance with EEC standards, some have wider effects: a single complaint by a resident in one of the United Kingdom's two non-attainment areas with regard to the 1980 EEC Directive on Air Quality Limit Values and Guide Values for Sulphur Dioxide and Suspended Particulates²⁵³ thus triggered a Commission investi-

²⁴⁹ See Scheuing, *supra* note 78, at 192; Pernice, *Kompetenzordnung und Handlungsbefugnisse der Europäischen Gemeinschaft auf dem Gebiet des Umwelt- und Technikrechts* [The European Community's system of competences and authority to act in the field of environmental and technological law], 22 DIE VERWALTUNG 1–54 (1989).

²⁵⁰ Sixth Annual Report to the European Parliament on Commission Monitoring of the Application of Community Law—1988, 32 O.J. EUR. COMM. (No. C 330) 1 (1989); see also *supra* note 122 and accompanying text. The previous (fifth) report appears in 31 O.J. EUR. COMM. (No. C 310) 1 (1988); see also Kraemer, *Du contrôle de l'application des directives communautaires en matière de l'environnement*, REVUE DU MARCHÉ COMMUN 22–40 (1988).

²⁵¹ See Pernice, *supra* note 249, at 40.

²⁵² COMMISSION OF THE EUROPEAN COMMUNITIES, INFORMATION MEMO P/90/5 (Feb. 8, 1990).

²⁵³ Council Directive 80/779/EEC of July 15, 1980, 23 O.J. EUR. COMM. (No. L 229) 130 (1980); see also Smeets, *Air Quality Limits and Guide Values for Sulphur Dioxide and*

Table 2. Proceedings for Infringements of EEC Environmental Directives.

	EEC Commission action pursuant to Art. 169 pending as of 31.12.1989			EEC Court decisions pursuant to Ar. 169 against member state
	Letters of notice	Reasoned opinions	References to EEC Court	(1981-1989)
Belgium	27	8	11	13
Denmark	5	—	—	1
France	28	6	7	1
Germany, Fed. Rep.	13	8	8	8
Greece	37	5	3	—
Ireland	16	5	—	—
Italy	17	16	7	8
Luxembourg	9	2	1	—
Netherlands	18	5	2	4
Portugal	10	4	—	8
Spain	45	—	3	—
United Kingdom	18	8	5	—
TOTALS	242	76	44	29

Source: COMMISSION OF THE EUROPEAN COMMUNITIES, *supra* note 252, at Annex 2; *Sixth Annual Commission Report*, *supra* note 250, at 38.

gation that led to infringement proceedings against seven Member States.²⁵⁴

Significantly, the EEC has no powers of physical enforcement comparable to those of a national government. Although virtually all of the more than thirty judgments rendered by the European Court of Justice in environmental infringement proceedings since 1982 went against the defendant Member States and upheld the Commission's opinion, not all led to compliance. In the 1988 case of *Commission v. Kingdom of Belgium*,²⁵⁵ for instance, the court noted

Suspended Particulates: A European Community Directive, 1 ENVTL. MONITORING & ASSESSMENT 373-82 (1982).

²⁵⁴ Haigh, *Impact of the EEC Environmental Programme: The British Example*, 4 CONN. J. INT'L L. 453, 458 n.11 (1989); see also N. HAIGH, EEC ENVIRONMENTAL POLICY AND BRITAIN (2d rev. ed. 1989).

²⁵⁵ *Court of Justice of the European Communities, Joined Cases 227/85 to 230/85, Reports of Cases Before the Court* (1988) 1-12; summary in 31 O.J. EUR. COMM. (No. C 37) 4 (1988).

that Belgium had failed to fulfill its obligations under article 171 of the Treaty by refusing, in defiance of earlier (1982) judgments of the court, to adopt the measures necessary to implement four EEC directives on waste disposal. The mere opening of EEC action can, however, have internal political and economic consequences in Member States. In the United Kingdom, the government's plans for privatization of local water management agencies were stalled in part because of pending EEC infringement proceedings, when it turned out that some areas scheduled for privatization did not meet EEC water quality standards.²⁵⁶ As a result of this growing impact on local environmental quality, the "custodial action" procedure of the EEC Commission has evolved from a three-stage to a four-stage process: the optional first stage in most cases is now a citizen complaint.²⁵⁷

3. Environmental Audits

Besides judicial review, international organizations have developed other forms of compliance control. Probably the body with the most such experience is the International Labor Organization (ILO), which has enacted and monitored a long line of multilateral conventions since the 1920s—ranging from bans on white lead paint and other occupational health hazards to workplace protection from air pollution, radiation, and toxic chemicals.²⁵⁸ All these conventions contain provisions on dispute settlement that allow states to initiate complaints and ad hoc inquiries against other states for not observing the Treaty. However, a detailed study of ILO's enforcement record over more than sixty years shows that this adversarial procedure was used only rarely and then mostly for political potshots.²⁵⁹ Instead, ILO Member States developed an entirely different procedure that turned out to be far more effective in enforcing compliance: annual or biennial reporting by governments, combined with regular

²⁵⁶ Fin. Times, Apr. 7, 1989, at 2; see Sands, *supra* note 135, at 415 n.98. The proceedings in this case were triggered by a complaint from a non-governmental organization (Friends of the Earth).

²⁵⁷ According to Kraemer, *supra* note 250, more than half of the infringement proceedings initiated by the Commission are based on complaints.

²⁵⁸ For a summary of International Labor Organization (ILO) conventions and recommendations on the working environment, see ENVIRONMENTAL LAW: AN IN-DEPTH REVIEW, UNEP REPORT No. 2, at 53–64 (1981).

²⁵⁹ V. GHEBALI, THE INTERNATIONAL LABOUR ORGANIZATION: A CASE STUDY ON THE EVOLUTION OF UN SPECIALIZED AGENCIES (1989); see also A. ALCOCK, HISTORY OF THE INTERNATIONAL LABOUR ORGANIZATION (1971).

auditing by an independent technical committee of experts to ascertain compliance in each Member State, followed by public debate of these audited reports by the Conference Committee on the Application of Conventions and Recommendations.²⁶⁰

Over the years, the ILO "auditing" system—with the active participation of both trade unions and employers' associations—has turned into a worldwide public hearing that clearly induces more compliance by governments than the threat of any intergovernmental legal action would. The UN Commission on Human Rights applies a similar procedure of country reports and public hearings,²⁶¹ in which non-governmental organizations (such as Amnesty International) play an active role.

In the environmental field, the biennial Conference of the Parties to CITES²⁶² has become a forum for international review of compliance with the Treaty, again with massive non-government organization (NGO) support. Similarly, reviews of treaty implementation by parties to the Convention on Long-Range Transboundary Air Pollution²⁶³ and its protocols are carried out and published regularly by the Executive Body for the Convention.²⁶⁴

In all these cases, periodic audits of compliance with agreed-upon international standards are well established. Essential to this process is publicity. It facilitates collective review and mutual accountability²⁶⁵ by all Member States and, even more important, exposes governmental compliance reports to scrutiny by NGOs and, through them, by the public.²⁶⁶

²⁶⁰ E. LANDY, THE EFFECTIVENESS OF INTERNATIONAL SUPERVISION: THIRTY YEARS OF I.L.O. EXPERIENCE (1966); *see also* Valticos, *Contrôle*, in A HANDBOOK ON INTERNATIONAL ORGANIZATIONS 332, 340–44 (R.J. Dupuy ed. 1988).

²⁶¹ See T. MERON, HUMAN RIGHTS LAW-MAKING IN THE UNITED NATIONS: A CRITIQUE OF INSTRUMENTS AND PROCESS (1986); Bossyut, *The Development of Special Procedures of the UN Commission for Human Rights*, 6 HUM. RTS. L.J. 179–210 (1985); Williams, *The United Nations and Human Rights*, in INTERNATIONAL INSTITUTIONS AT WORK 114–29 (P. Taylor & A.J.R. Groom eds. 1988).

²⁶² See *supra* note 26 and accompanying text.

²⁶³ See *supra* note 58 and accompanying text.

²⁶⁴ See *supra* note 187 and accompanying text. The first major (four-years) review was published in 1987. The 1988 annual review was published in TRANSBOUNDARY AIR POLLUTION, *supra* note 65; AIR POLLUTION STUDIES No. 6, at 3–20, U.N. Sales No. E.90.III.E.33 (1989 annual review) (1990).

²⁶⁵ See Brown & Fabian, *Toward Mutual Accountability in the Nonterrestrial Realms*, 29 INT'L ORG. 877 (1975).

²⁶⁶ See, e.g., UMWELT NO. 11, at 524 (1989) (discussing the extensive parliamentary questions by the "Greens" on CITES implementation in the Federal Republic of Germany, in preparation of the seventh Conference of the Parties). See also LEIVE, *supra* note 113, at vol. II, 576 (concluding that publicizing non-compliance would effect a "mobilization of shame to

The concept of environmental auditing also has been taken up directly by such NGOs as Friends of the Earth,²⁶⁷ and by industry. Several major transnational corporations—at least partly in response to the Bhopal shock—now carry out regular environmental audits to ensure that regulatory requirements and long-term environmental liabilities (such as legal waste-disposal duties) are accurately reflected in their subsidiaries' balance sheets.²⁶⁸ In November 1988, the Executive Board of the International Chamber of Commerce (ICC) adopted a position paper on environmental auditing for business organizations, reflecting experience in countries and companies where the practice is already well established.²⁶⁹ A fundamental difference remains, however, between the more limited scope of auditing as an internal business management technique and the idea of public review, which emerges as the key element of the international environmental audit procedures presented here. Inherent in the latter is public disclosure as a means of ensuring democratic control over the implementation of agreed-upon international standards.

One strong point of environmental audits is timing. Audits can make a difference *before* things have gone seriously wrong—unlike traditional judicial review mechanisms based on liability, which can only intervene after the fact. Considering the clear need to make environmental controls preventive rather than corrective, now may be the time to envisage a global auditing body that would periodically evaluate the performance of states and organizations in complying with their international obligations. Rather than relying on ad hoc review by a tribunal, where “action” would turn inevitably into confrontation, it may be preferable to assign this function to a permanent intergovernmental body—such as the United Nations Trusteeship Council, as recently suggested by Maurice Strong, Secretary General of the UN Conference on Environment and Development.²⁷⁰

induce compliance”); Handl & Lutz, *An International Policy Perspective on the Trade of Hazardous Materials and Technologies*, 30 HARV. INT'L L.J. 351, 373 (1989) (stressing the importance of public scrutiny).

²⁶⁷ Local environmental audits have been organized by Friends of the Earth at the county level in the United Kingdom since 1988.

²⁶⁸ See the UNEP survey of environmental auditing practices in 11 INDUSTRY & ENV'T no. 4, at 3 (1988); Palmisano, *Environmental Auditing: Past, Present and Future*, 1 ENVTL. AUDITOR 7-20 (1989); THE ENVIRONMENTAL AUDIT: A GREEN FILTER FOR COMPANY POLICIES, PLANTS, PROCESSES AND PRODUCTS (WWF/UK 1989).

²⁶⁹ See 19 ENVTL. POL'Y & L. 82 (1989) (text of the 56th session of the ICC Executive Board, Paris, Nov. 29, 1988).

²⁷⁰ Strong, *The United Nations in an Interdependent World*, INT'L AFF. no. 1, at 11, 20

As in the field of standard-setting and regulation, more imaginative approaches to compliance control are needed today than those drawn from outdated legal textbooks. An obvious and largely untapped source is the rich procedural experience of existing international institutions.²⁷¹

IV. OUTLOOK: A VIEW FROM THE ANTHILL

In the current international debate on environmental priorities in the face of global change, far too many hopes seem pinned on some new utopia of world government. It is most unlikely that problems of this dimension—such as climate modification—can be resolved by organizational restructuring alone, nor for that matter by yet another epic codification like the Law of the Sea. Given the urgency of the task, the most expedient and most economic course of action would be to activate and accelerate all available international machinery without waiting for new global institutions.

The obvious disadvantage of relying on the existing structure is its sheer complexity. We are dealing with an aggregate, rather than a system, of multiple environmental regimes. Ernst Haas has compared it to an anthill,²⁷² but the analogy may be euphemistic considering the well-organized hierarchies of social insects. Making environmental standard-setting and implementation coherent will require more than further coordination within the United Nations family of organizations; indeed, the whole range of global and regional institutions must be involved. The small “Centre for Our Common Future” set up in Geneva in 1988 to oversee follow-up to the Brundtland Report has already made an impressive start in this direction.²⁷³

An advantage of the present structure—and one that hopefully sets it apart from the stereotype of insect societies—is its openness and adaptiveness to change. Any new institutional arrangements for

(1989); Statement by M. Strong to the World Federation of United Nations Associations, Halifax, June 5, 1988; see also Franck, *Soviet Initiatives: U.S. Responses—New Opportunities for Reviving the United Nations System*, 83 AM. J. INT'L L. 531, 541 (1989).

²⁷¹ See Thacher, *International Mechanisms and Global Changes*, 14 ENVTL. CONSERV. 191 (1987).

²⁷² See Haas, *supra* note 6, at 389.

²⁷³ BRUNDTLAND BULLETIN, No. 6 (Dec. 1989) (regular reports on follow-up activities). The Centre has succeeded in mobilizing worldwide support for the Brundtland Report's concept of "sustainable development" among intergovernmental and non-governmental organizations, especially through a network of more than 120 "working partners" from all sectors. See *id.*

environmental governance should seek to preserve and enhance this capacity. Practical devices for this purpose include the built-in review schedules that have appeared in a number of recent environmental agreements:

- The 1987 Montreal Protocol on Substances That Deplete the Ozone Layer stipulated that "beginning in 1990, and at least every four years thereafter, the Parties shall assess the control measures . . . on the basis of available scientific, environmental, technical and economic information."²⁷⁴ Four assessment panels, coordinated by an intergovernmental "Open-Ended Working Group,"²⁷⁵ were set up in 1989 and reported to the second meeting of the Parties in June 1990.²⁷⁶
- The 1988 Sofia Protocol to the Convention on Long-Range Trans-boundary Air Pollution provides for regular reviews of the agreement, starting no later than one year after its entry into force. It also says that negotiations on further steps must start no later than six months after entry into force and "[take] into account the best available scientific and technological developments."²⁷⁷ In anticipation of this process, an intergovernmental "Working Group on Abatement Strategies" began to meet in 1989 and will report to the Executive Body for the Convention in November 1991.
- The 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal has scheduled an evaluation of the treaty's effectiveness three years after its entry into force and at least every six years thereafter. The evaluation mandate includes the possible "adoption of a complete or partial ban of transboundary movements of hazardous wastes and other wastes in light of the latest scientific, environmental, technical and economic information."²⁷⁸

This new generation of all-out reviews—mirrored in the broad remit of the UN Conference on Environment and Development in 1992²⁷⁹—clearly amounts to more than a routine inspection and maintenance service.²⁸⁰ If the mandate of a review is policy re-orientation

²⁷⁴ Montreal Protocol, art. 6, *supra* note 18, at 1556.

²⁷⁵ See *supra* note 32 and accompanying text.

²⁷⁶ *See id.*

²⁷⁷ See Nitrogen Oxides Protocol, arts. 2(3), 5, *supra* note 33, at 216.

²⁷⁸ See Basel Convention, art. 15(7), *supra* note 31, at 670.

²⁷⁹ G.A. Res. 44/228 (1989).

²⁸⁰ The present analysis draws on an unpublished study of "revision clauses" in environmental agreements, prepared for the German Federal Parliament's Commission of Inquiry on Protection of the Atmosphere. See L. Gundling, Study at Max Planck Institute for Comparative Public Law and International Law (Heidelberg 1989).

in light of future knowledge and experience, it must include the option of consequential institutional change. What emerges, then, is indeed close to the new "fluid" model of environmental regimes envisaged by Jessica Tuchman Mathews, as "a rolling process of intermediate or self-adjusting agreements that respond quickly to growing scientific understanding."²⁸¹ Even though open-ended commitments of this kind are still viewed with apprehension by diplomats, the "feedback loop" seems well on its way to becoming an established instrument of international environmental law—with a new obligation emerging for governments to take part in a deliberate, pre-programmed process of institutional learning.

²⁸¹ Mathews, *Redefining Security*, 68 FOREIGN AFF. 162, 176 (1989).